DOUBLE ISSUE JUNE 13, 2011

Health Special Report

THE NEXT WAVE OF CANCER TREATMENT

Dr. Oz: Lessons from my cancer scare + Is your cell phone safe?

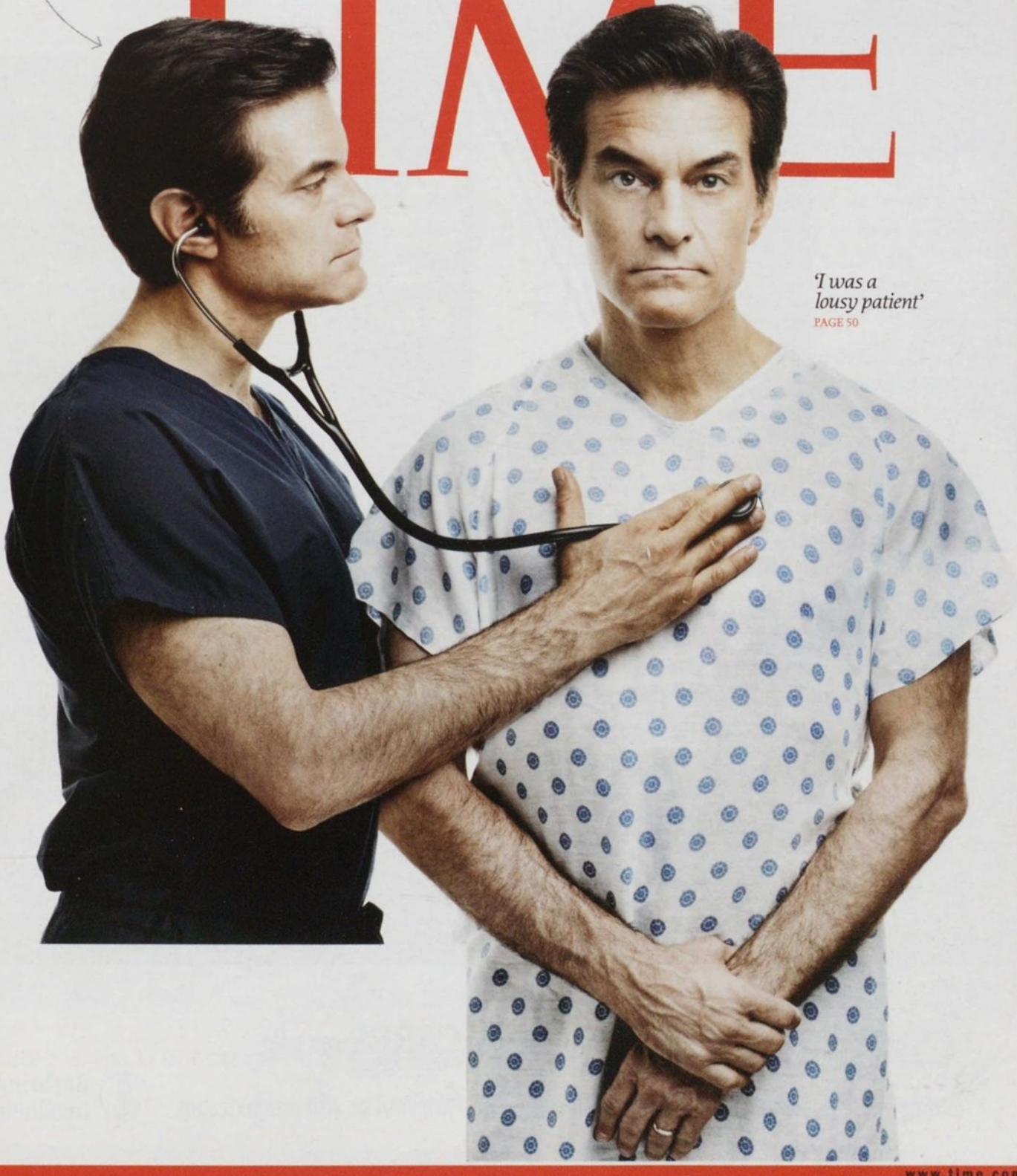
PLUS

Fareed Zakaria: The future of innovation

Joe Klein: How to misread a mandate

Airlines: The season of sky-high add-ons

TIME

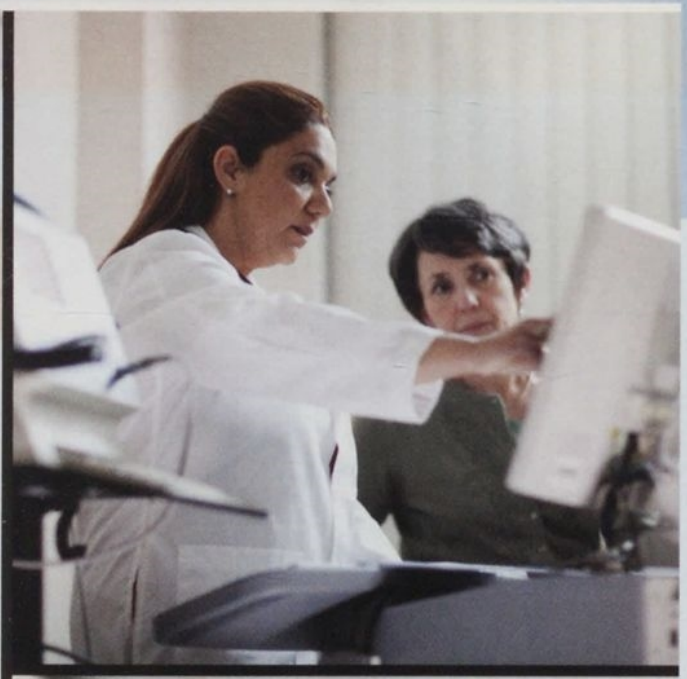


'I was a lousy patient'
PAGE 50

"*FINALLY* I can offer my patients a choice."

Dr. Minerva Santo-Tomas
Cardiologist
Miami, FL

Doctor Compensated



If you need help paying for your medication CARES FOUNDATION *can help,*

and for more information about PRADAXA call 1-877-PRADAXA or visit pradaxa.com.

Boehringer Ingelheim

If you have an irregular heartbeat called *atrial fibrillation* *not caused by a heart valve problem* ask your doctor about **PRADAXA.**

- In a clinical trial, PRADAXA 150 mg **reduced stroke risk 35% more** than warfarin. Risk reduction was greatest when compared to patients on warfarin whose blood tests showed lower levels of control.
- **No regular blood tests**

PRADAXA is a prescription blood-thinning medicine used to reduce the risk of stroke and blood clots in people with atrial fibrillation not caused by a heart valve problem. With atrial fibrillation, part of the heart does not beat the way it should. This can cause blood clots to form, increasing your risk of a stroke. PRADAXA lowers the chance of blood clots forming in your body.

IMPORTANT SAFETY INFORMATION ABOUT *PRADAXA*

PRADAXA can cause bleeding which can be serious and sometimes lead to death. Don't take PRADAXA if you currently have abnormal bleeding or if you have ever had an allergic reaction to it. **Your risk of bleeding with PRADAXA may be higher if you:** are 75 years old or older, have kidney problems, have stomach or intestine bleeding that is recent or keeps coming back or you have a stomach ulcer, take other medicines that increase your risk of bleeding, like aspirin products, non-steroidal anti-inflammatory drugs (NSAIDs) and blood thinners.

Call your doctor or seek immediate medical care if you have any of the following signs or symptoms of bleeding: any unexpected, severe, or uncontrollable bleeding; or bleeding that lasts a long time, unusual or unexpected bruising, coughing up or vomiting blood; or vomit that looks like coffee grounds, pink or brown urine; red or black stools (looks like tar), unexpected pain, swelling, or joint pain, headaches and feeling dizzy or weak.

It is important to tell your doctor about all medicines, vitamins and supplements you take. Some of your other medicines may affect the way PRADAXA works.

Take PRADAXA exactly as prescribed by your doctor. Don't stop taking PRADAXA without talking to your doctor as your risk of stroke may increase.

Tell your doctor if you are planning to have **any** surgery, or medical or dental procedure, because you may have to stop taking PRADAXA for a short time. PRADAXA can cause indigestion, stomach upset or burning, and stomach pain.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda/medwatch or call 1-800-FDA-1088.

Please see more detailed Medication Guide on next page.

Reduce your risk of a stroke caused by a clot that starts in the heart.

Pradaxa®
dabigatran etexilate
CAPSULES

PX88304CONSA

Pradaxa®
dabigatran etexilate
CAPSULES

MEDICATION GUIDE

PRADAXA (pra dax' a)
(dabigatran etexilate mesylate)
capsules

Read this Medication Guide before you start taking PRADAXA and each time you get a refill. There may be new information. This Medication Guide does not take the place of talking with your doctor about your medical condition or your treatment.

What is the most important information I should know about PRADAXA?

- PRADAXA can cause bleeding which can be serious, and sometimes lead to death. This is because PRADAXA is a blood thinner medicine that lowers the chance of blood clots forming in your body.
- **You may have a higher risk of bleeding if you take PRADAXA and:**
  - Are over 75 years old
  - Have kidney problems
  - Have stomach or intestine bleeding that is recent or keeps coming back, or you have a stomach ulcer
  - Take other medicines that increase your risk of bleeding, including:
    - aspirin or aspirin containing products
    - long-term (chronic) use of non-steroidal anti-inflammatory drugs (NSAIDs)
    - warfarin sodium (Coumadin®, Jantoven®)
    - a medicine that contains heparin
    - clopidogrel (Plavix®)
    - prasugrel (Effient®)

  Tell your doctor if you take any of these medicines. Ask your doctor or pharmacist if you are not sure if your medicine is one listed above.
- PRADAXA can increase your risk of bleeding because it lessens the ability of your blood to clot. While you take PRADAXA:
  - You may bruise more easily
  - It may take longer for any bleeding to stop

Call your doctor or get medical help right away if you have any of these signs or symptoms of bleeding:

- Unexpected bleeding or bleeding that lasts a long time, such as:
  - unusual bleeding from the gums
  - nose bleeds that happen often
  - menstrual bleeding or vaginal bleeding that is heavier than normal
- Bleeding that is severe or you cannot control
- Pink or brown urine
- Red or black stools (looks like tar)
- Bruises that happen without a known cause or get larger
- Cough up blood or blood clots
- Vomit blood or your vomit looks like "coffee grounds"
- Unexpected pain, swelling, or joint pain
- Headaches, feeling dizzy or weak

Take PRADAXA exactly as prescribed. Do not stop taking PRADAXA without first talking to the doctor who prescribes it for you. Stopping PRADAXA may increase your risk of a stroke.

PRADAXA may need to be stopped, if possible, for one or more days before any surgery, or medical or dental procedure. If you need to stop taking PRADAXA for **any reason**, talk to the doctor who prescribed PRADAXA for you to find out when you should stop taking it. Your doctor will tell you when to start taking PRADAXA again after your surgery or procedure.
See "What are the possible side effects of PRADAXA?" for more information about side effects.

What is PRADAXA?

PRADAXA is a prescription medicine used to reduce the risk of stroke and blood clots in people who have a medical condition called atrial fibrillation. With atrial fibrillation, part of the heart does not beat the way it should. This can lead to blood clots forming and increase your risk of a stroke. PRADAXA is a blood thinner medicine that lowers the chance of blood clots forming in your body.

It is not known if PRADAXA is safe and works in children.

Who should not take PRADAXA?

Do not take PRADAXA if you:

- Currently have certain types of abnormal bleeding. Talk to your doctor, before taking PRADAXA if you currently have unusual bleeding.
- Have had a serious allergic reaction to PRADAXA. Ask your doctor if you are not sure.

What should I tell my doctor before taking PRADAXA?

Before you take PRADAXA, tell your doctor if you:

- Have kidney problems
- Have ever had bleeding problems
- Have ever had stomach ulcers
- Have any other medical condition
- Are pregnant or plan to become pregnant. It is not known if PRADAXA will harm your unborn baby.
- Are breastfeeding or plan to breastfeed. It is not known if PRADAXA passes into your breast milk.

Tell all of your doctors and dentists that you are taking PRADAXA. They should talk to the doctor who prescribed PRADAXA for you, before you have **any** surgery, or medical or dental procedure.

Tell your doctor about all the medicines you take, including prescription and non-prescription medicines, vitamins, and herbal supplements. Some of your other medicines may affect the way PRADAXA works. Certain medicines may increase your risk of bleeding. See "**What is the most important information I should know about PRADAXA**?"

Especially tell your doctor if you take:

- rifampin (Rifater, Rifamate, Rimactane, Rifadin)

Know the medicines you take. Keep a list of them and show it to your doctor and pharmacist when you get a new medicine.

How should I take PRADAXA?

- **Take PRADAXA exactly as prescribed by your doctor.**
- Do not take PRADAXA more often than your doctor tells you to.
- You can take PRADAXA with or without food.
- Swallow PRADAXA capsules whole. Do not break, chew, or empty the pellets from the capsule.
- If you miss a dose of PRADAXA, take it as soon as you remember. If your next dose is less than 6 hours away, skip the missed dose. Do not take two doses of PRADAXA at the same time.
- Your doctor will decide how long you should take PRADAXA. **Do not stop taking PRADAXA without first talking with your doctor. Stopping PRADAXA may increase your risk of stroke.**
- Do not run out of PRADAXA. Refill your prescription before you run out. If you plan to have surgery, or a medical or a dental procedure, tell your doctor and dentist that you are taking PRADAXA. You may have to stop taking PRADAXA for a short time. See "What is the most important information I should know about PRADAXA?"
- If you take too much PRADAXA, go to the nearest hospital emergency room or call your doctor or the Poison Control Center right away.

What are the possible side effects of PRADAXA?
PRADAXA can cause serious side effects.

- See "What is the most important information I should know about PRADAXA?"
- Allergic Reactions. In some people, PRADAXA can cause symptoms of an allergic reaction, including hives, rash, and itching. Tell your doctor or get medical help right away if you get any of the following symptoms of a serious allergic reaction with PRADAXA:
  - chest pain or chest tightness
  - swelling of your face or tongue
  - trouble breathing or wheezing
  - feeling dizzy or faint

Common side effects of PRADAXA include:

- indigestion, upset stomach, or burning
- stomach pain

Tell your doctor if you have any side effect that bothers you or that does not go away.

These are not all of the possible side effects of PRADAXA. For more information, ask your doctor or pharmacist.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store PRADAXA?

- Store PRADAXA at room temperature between 59°F to 86°F (15°C to 30°C). After opening the bottle, use PRADAXA within 30 days. Safely throw away any unused PRADAXA after 30 days.
- Store PRADAXA in the original package to keep it dry. Keep the bottle tightly closed.

Keep PRADAXA and all medicines out of the reach of children.

General information about PRADAXA

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not use PRADAXA for a condition for which it was not prescribed. Do not give your PRADAXA to other people, even if they have the same symptoms. It may harm them.

This Medication Guide summarizes the most important information about PRADAXA. If you would like more information, talk with your doctor. You can ask your pharmacist or doctor for information about PRADAXA that is written for health professionals.

For more information, go to www.PRADAXA.com or call 1-800-542-6257 or (TTY) 1-800-459-9906.

What are the ingredients in PRADAXA?

Active ingredient: dabigatran etexilate mesylate

Inactive ingredients: acacia, dimethicone, hypromellose, hydroxypropyl cellulose, talc, and tartaric acid. The capsule shell is composed of carrageenan, FD&C Blue No. 2, FD&C Yellow No. 6, hypromellose, potassium chloride, titanium dioxide, and black edible ink.

Distributed by:
Boehringer Ingelheim Pharmaceuticals, Inc.
Ridgefield, CT 06877 USA

Boehringer Ingelheim

This Medication Guide has been approved by the U.S. Food and Drug Administration.

Coumadin® is a registered trademark for Bristol-Myers Squibb
Jantoven® is a registered trademark for USL Pharma
Plavix® is a registered trademark of sanofi aventis
Effient® is a registered trademark of Eli Lilly and Company

Issued March 2011

PX88211CONS

TIME

VOL. 177, NO. 24 | 2011

ON THE COVER:
Photo-Illustration by Marco Grob for TIME. *Styling by Jonathan Elder*

Dancers with the Cuban National Ballet limber up as they prepare for their first U.S. tour in eight years. Photograph by Peter Hapak for TIME

Know your cancer charities, page 78

JAMIE CHUNG FOR TIME

TIME (ISSN 0040-781X) is published weekly, except for two issues combined at year-end, by Time Inc. Principal Office: Time & Life Building, Rockefeller Center, New York, NY 10020-1393. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Canada Post Publications Mail Agreement No. 40110178. Return undeliverable Canada addresses to: Postal Stn A, P.O. Box 4322, Toronto, Ont., M5W 3G9. GST #888381621RT0001

U.S. subscriptions: $49 for one year. **Subscribers:** If the Postal Service alerts us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within two years. **Postmaster:** Send address changes to TIME, P.O. Box 30601, Tampa, FL 33630-0601. **CUSTOMER SERVICE AND SUBSCRIPTIONS—For 24/7 service, please use our website: *www.time.com/customerservice.*** You can also call 1-800-843-TIME or write to TIME at P.O. Box 30601, Tampa, FL 33630-0601. **Mailing list:** We make a portion of our mailing list available to reputable firms. If you would prefer that we not include your name, please call, or write us at P.O. Box 60001, Tampa, FL 33630, or send us an e-mail at ***privacy@time.customersvc.com.*** Printed in the U.S.

IF WE KNEW ANY MORE ABOUT FISHING, WE'D HAVE GILLS.

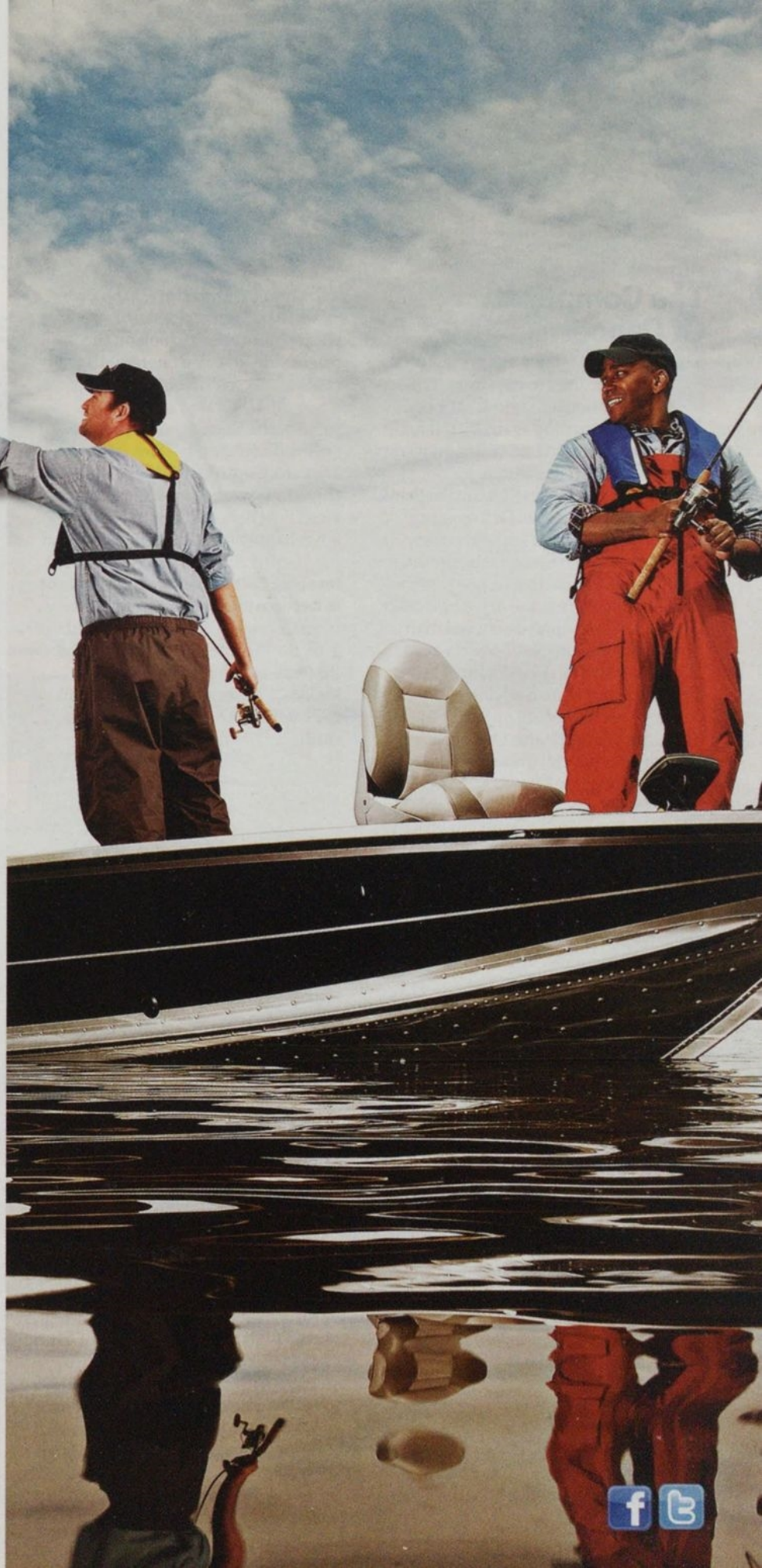
From choosing the right lure to finding the best trolling motor for your boat, we'll help you be prepared. Learn, plan and equip for a memorable day on the water.

TAKEMEFISHING.org

OFFICIAL PARTNERS

SPORT FISH RESTORATION

MARKEL



Inbox

TIME stories that elicited the most mail

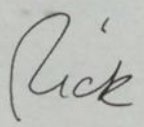
EDITOR'S DESK

The Complexity Of Cancer

CANCER'S TERRIBLE POWER comes in part from its own twisted logic: it's the body turning against itself for reasons we still cannot completely fathom. It's not a possibility that anyone really wants to think about, which is why Dr. Oz's opening story about his cancer scare in our special health package on cancer detection and treatment is so instructive. Just like the patients who sometimes drive him crazy, he procrastinated and disobeyed instructions. It's some consolation to the rest of us that even the good doctor doesn't always follow his own advice.

As we were sending our issue to press, the World Health Organization announced that cell phones are "possibly carcinogenic." It was a chance for our own Bryan Walsh, who has written extensively on this topic, to analyze the studies to date and separate the facts from the fears. In our package, deftly curated by science editor Jeffrey Kluger, we address the biggest questions regarding cancer—scientific, therapeutic, emotional and personal. You'll find powerful and moving stories about the anxiety of getting screened, whether screenings are truly effective, why some patients refuse treatment, which cancer charities best put your money to work and how researchers are unraveling the genome of cancer and learning to use its DNA against it. Be sure to watch Dr. Oz talk about his piece on his syndicated show, which is taking the spot formerly occupied by *The Oprah Winfrey Show* in more than 80 markets around the country.

One other television note: Fareed Zakaria's piece this week on America's need to innovate is the basis for his hourlong special on CNN, *Restoring the American Dream: How to Innovate.*



Richard Stengel, MANAGING EDITOR

THE CONVERSATION

Tali Sharot's cover story, **"The Optimism Bias,"** which explained that we are hardwired to look on the bright side, struck a chord with readers of all dispositions, generating 3,000-plus likes on Facebook and some of the week's more ethereal online discussions. "Does goodness arise from optimism?" began one thread. "Live with intention," advised another commenter. "It's not what happens but what you do about it." Also driving traffic: a piece about **teaching Chinese schoolgirls how not to become mistresses,** an interview from Cannes with **Brad Pitt** about director Terrence Malick, and **"The 20 Best- and Worst-Paid College Majors."** Takeaway tip: if you want to be optimistic about your financial future, major in engineering.

TIME.com
Most Read Stories

The Optimism Bias

China: Can Education Curb a Mistress Epidemic?

Priest Sex-Abuse Case Hits Church of Pope's Adviser

Top 50 iPhone Apps

Techland: Facebook, Twitter Aren't Responsible for Your Online Behavior

Brad Pitt on the Mystery of Terry Malick

The 20 Best- and Worst-Paid College Majors

Jobless Discrimination? When Firms Won't Even Consider Hiring Anyone Unemployed

MAIL

The Sunny Side of the Street

I respectfully acknowledge Tali Sharot's focus on the science behind our optimistic brains, but I hope she also considers the faith factor [June 6]. Even after my first marriage ended after 18 years, even after my teenage daughter became pregnant, even after doctors diagnosed my breast cancer, I chose optimism. Perhaps God did hardwire my brain that way, but knowing he is beside me every step of my journey here on earth is why I choose optimism and why I have hope.

Chris Grosser, GAYLORD, MICH.

While it is plausible to believe humans may be neurologically inclined toward optimism, it is more plausible that this optimism is a product of society. Through exposure to incessant marketing strategies from birth, we are influenced to believe that our lives will or at least could be sunny and perfect. I wonder if the optimism found in the research subjects you discuss would be shared by people in destitute third-world countries who do not see the ads full of wealth and materialism that litter every inch of modern global societies.

Emma Woodward, CHAPEL HILL, N.C.

The optimism bias is the key to the continuation of our species. Any woman who has experienced pregnancy, endured the pain of childbirth and changed a thousand dirty diapers would know this. The only way women would be willing to have more children would be to file the positive memories and dull the negative ones. My mother explained this to me years ago.

Susan Berron, MANCHESTER, MO.

There is nothing "irrational" about hope and optimism: it is more important that we survive than look at the world rationally, and false beliefs may in fact help us to do so.

Richard Tokumei, NEWPORT BEACH, CALIF.

Peace Politics

Joe Klein's article "Bibi Provokes Barack" is fraught with wrong assumptions [June 6]. The occupied land upon which the "illegal settlements" are built belongs to Israel. In 1948, Israel was

FRANCOIS GUILLOT—AFP/GETTY IMAGES

I BALANCE *work and life.*
MY HOTEL SHOULD BE ABLE TO BALANCE *style and comfort.*

NEVER *settle.* At Hyatt Place, we believe you deserve a great hotel experience with every stay. That's why you'll discover everything you need to travel without disruption at more than 160 locations.

Learn more at hyattplace.com, or call 888 492 8847 for more information.

free wi-fi • free continental breakfast • plush Hyatt Grand Bed™ welcome to a different place®

HYATT PLACE®

invaded by five Arab states. Israel won the war, and the occupied land became a prize of war, like Texas. In his May speech regarding Middle East policy, Obama stated that Israel shouldn't have to negotiate with terrorist groups like Hamas that deny its right to exist. Until the government of Palestine recognizes the existence of the state of Israel, how can negotiations begin? The assumption that the Palestinian state can be demilitarized is pie-in-the-sky. It is totally unenforceable.

Philip Schirm, LOS GATOS, CALIF.

Joe Klein doesn't say it loud enough. Netanyahu's patronizing attitude toward Obama was infuriating. It is time to withdraw and let the chips fall where they may. Only when Israelis realize they are alone to face a hostile environment will they perhaps come to their senses.

Lucille Apcar, MARIPOSA, CALIF.

Eyes on a Storm

David Von Drehle's "Torn Asunder" does not read as a journalistic report but rather as a wonderful piece of historical literature [June 6]. Its lyrical descriptions, succinctness and transitions from scenes of devastation to tales of unbelievable courage were truly moving.

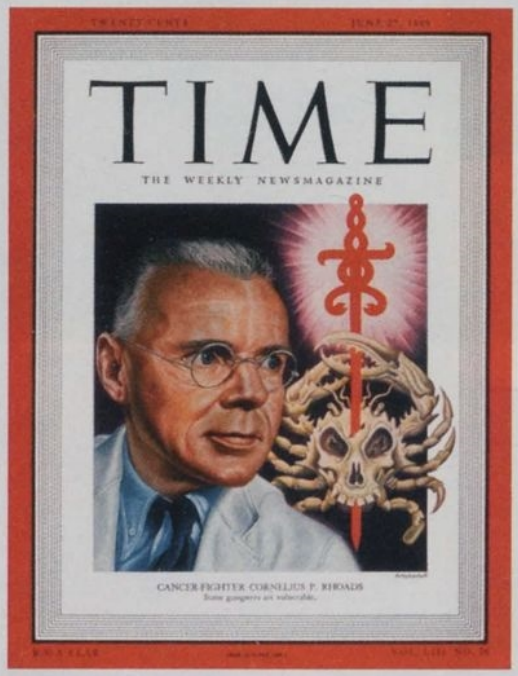
Eileen Towse, TOLEDO, OHIO

Von Drehle's simple, elegant lead was the first explanation of a tornado's formation that I have ever really understood. Thank you for a superb piece of writing.

Carole Bastian, LEESVILLE, S.C.

Thanks to David Von Drehle for his frighteningly descriptive words and to Edward Keating for his heartbreaking pictures of the devastation in Joplin, Mo. While I haven't lived there for 33 years, I am a native of Joplin, and it will always be home to me. I can't compare the Hiroshima-like landscape with the pretty little town where I grew up. Joplinites are a tough bunch; they are resilient and will rebuild. But they need so much help right now. My friends and family are digging to repair the damage done. Please don't forget them as time passes and a new crisis becomes the story of the day.

Cathey Sours Carter, MARION, IND.



JUNE 27, 1949

FROM THE ARCHIVES

Cancer Pioneer

Recent advances in detecting cancer (see page 60) stem in part from the work of Dr. Cornelius Rhoads, who made TIME's cover 62 years ago. "In a corner, a nurse ... is counting in some child's blood the deadly white cells of leukemia. All the children in Room 102 have this cancer of the blood, for which no cure is known. All of them, as medicine's knowledge stands at present, will die of the disease. 'Some authorities,' says Rhoads, 'think that we cannot solve the cancer problem until we have made a great, basic, unexpected discovery, perhaps in some apparently unrelated field. I disagree. I think we know enough to go ahead now and make a frontal attack with all our forces.'"

The 2012 Contenders

Re "Mark Halperin Weighs the GOP Odds" [June 6]: Why label Ron Paul, who has fundraising savvy, competitive national-poll numbers and an ability to generate real excitement, as a 2,000-to-1 long shot? With the Republican Convention over a year away, now should be the time to inform readers about the wide array of candidates, not marginalize anyone with strong views who might actually change something.

Patrick Frankfort, LYNCHBURG, VA.

How could you ignore Herman Cain? His Fair Tax idea will solve so many problems our country now faces.

Bill Frazer, AKRON, OHIO

Revamping the IMF

Re "No More Gentleman's Agreements" [June 6]: Rana Foroohar quotes Jim O'Neill, Goldman Sachs' chief economist, saying of the IMF that "it might be better if some leadership and authority came from outside Europe with a fresh set of independent eyes." The same might be said about the economic leadership of Wall Street coming from outside Washington.

David Mandell, HUDSON, FLA.

As an ex-official of the IMF, I have publicly criticized the organization, including its European leadership. However, it is unfair to refer to the IMF's advice to developing nations as dangerous and to characterize its approach as cookie-cutter even if such a view was suggested by Nobel Prize winner Joseph Stiglitz. Asia and Latin America corrected many of their previous ways, from crony capitalism to fiscal irresponsibility, at the behest of the IMF. The medicine was bitter but effective, with a few dramatic exceptions.

Claudio M. Loser, ROCKVILLE, MD.

Name That Celebrity!

I was disturbed that you did not identify the people in the photo accompanying the item on the end of the *Oprah* show [Pop Chart, June 6]. I don't know who some of those people are, and I doubt that 25 years from now, when digitized copies of this issue appear in libraries, anyone else will.

Christopher Brennan, NEW BRUNSWICK, N.J.

WRITE TO US

Send an e-mail: **letters@time.com.** Please do not send attachments

Send a letter: **TIME Magazine Letters, Time & Life Building, New York, NY 10020.** Letters should include the writer's full name, address and home telephone and may be edited for purposes of clarity and space

Customer Service and Change of Address For 24/7 service, please use our website: **www.time.com/customer service.** You can also call 1-800-843-8463 or write to TIME at P.O. Box 30601, Tampa, FL 33630-0601. **Back Issues** Contact us at *help.single@customersvc.com* or call 1-800-274-6800. **Reprints and Permissions** Information is available at the website *www.time.com/time/reprints.* To request custom reprints, e-mail *TimeIncReprints@parsintl.com* or call 1-212-221-9595, ext. 437; for all other uses, contact us by e-mailing *timereprints_us@timeinc.com.* **Advertising** For advertising rates and our editorial calendar, visit *timemediakit.com.* **Syndication** For international licensing and syndication requests, e-mail *syndication@timeinc.com* or call 1-212-522-5868

Please recycle this magazine and remove inserts or samples before recycling

The Father's Day gift
he'll **LOVE** every day

Savings you'll
LOVE now

Naturally whiter teeth
Healthier gums
Superior plaque removal

Like us on Facebook for special savings
Facebook.com/PhilipsSonicare
Click on the Experiment tab

♥ LOVE your toothbrush SWITCH to Sonicare

PHILIPS
sonicare
sense and simplicity

Less  More fun.

Toyota is the most fuel-efficient full-line automaker[1]

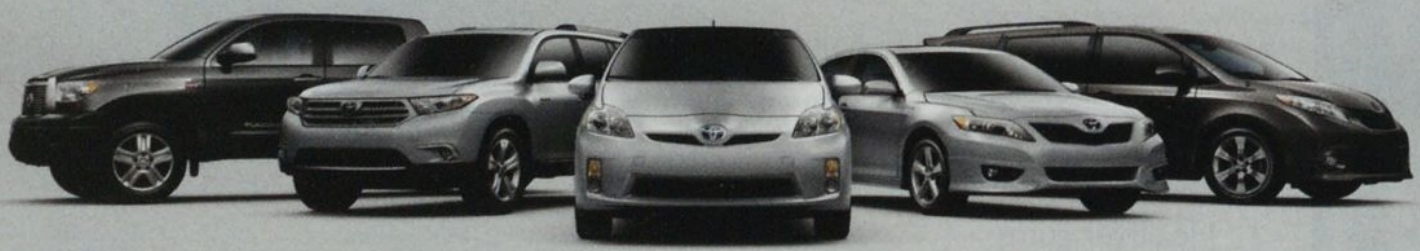
★ ★ ★ ★

Toyota has more hybrids on the road than
all other automakers combined[2]

★ ★ ★ ★

Toyota helps you go farther on a tank of gas,
which means more money for all the things that make summertime so enjoyable.

#1 FOR A REASON



Options shown. [1]Based on NHTSA Final Industry MY09 CAFE data for Toyota Motor Sales. [2]Based on Polk U.S. Vehicles in Operation as of July 2010. ©2011 Toyota Motor Sales, U.S.A., Inc.

TOYOTA
moving forward

Briefing

'We believe that the evil will speak out of him and that he will tell the truth.'

1. MUNIRA SUBASIC, head of the Association of Srebrenica Massacre Survivors, following Serbia's extradition of Ratko Mladic to the International Criminal Court, where he will stand trial for the killing of 8,000 Muslims

'The only meat I'm eating is from animals I've killed myself.'

2. MARK ZUCKERBERG, Facebook CEO, on his personal challenge for the year to take responsibility for what he eats

'Now that I see the bus, I could see how it would attract attention.'

3. SALLY HEATH, mother of former Alaska governor Sarah Palin, on the media scrutiny surrounding a Palin-family bus trip to historic American sites

'What he needs is shock therapy to gain the heart of his people.'

4. AHMET DAVUTOGLU, Turkey's Foreign Minister, suggesting that Syrian President Bashar Assad halt a government crackdown and deliver dramatic reforms to end his nation's months-long crisis

'From this moment, air strikes on the houses of people are not allowed.'

5. HAMID KARZAI, Afghan President, in what he called his last warning to NATO forces in his country, a few days after an air strike that Afghan officials say killed 14 civilians

82°F

The temperature (28°C) at which government offices and some firms in Japan have pledged to keep their thermostats this summer to cut electricity usage 15%; a new government campaign also advocates wearing Hawaiian shirts, T-shirts and sandals to make the office more bearable

30.6 GIGATONS

The amount of global carbon dioxide emissions in 2010—a record high, according to the International Energy Agency

$22 BILLION

Global airline revenue in 2010 from à la carte pricing on such things as checked baggage and food

$100,000

The amount PayPal co-founder Peter Thiel will pay each of 24 young adults to skip college for two years while they develop business proposals in areas such as biotechnology and energy

PHOTO-ILLUSTRATION BY SEAN MCCABE FOR TIME; 1: CORBIS; 2, 3: GETTY IMAGES; 4, 5: AP; ILLUSTRATION BY BROWN BIRD DESIGN FOR TIME (2)

Sources: AP; CNNMoney.com; TIME.com; New York *Times*; AP

LightBox

A powerful ride
The German government has announced that it will phase out nuclear energy by 2022. Completed in the mid-'80s, this nuclear plant in Kalkar was never opened and today houses an amusement park.

PATRIK STOLLARZ—AFP/GETTY IMAGES

World

A Grim Slide Into Chaos

YEMEN Islamists allegedly tied to al-Qaeda seized the coastal town of Zinjibar on May 29, leading to days of desperate fighting with government forces. In one ambush, militants killed at least five soldiers. Elsewhere, a short-lived truce between troops loyal to President Abdullah Ali Saleh and dissident tribesmen collapsed as clashes shook the southern city of Taiz and the capital, Sana'a, where thousands are trying to flee the mayhem. In Taiz, security forces and snipers are said to have fired live rounds at unarmed protesters marching through the streets. Dozens were killed in both cities. More than 320 people have died since the uprising against Saleh's three-decade rule began. Despite international pressure, the regime grimly clings to power. It's feared that al-Qaeda's Yemen-based Arabian arm may exploit the law-and-order vacuum.

An anti-Saleh protester in Sana'a

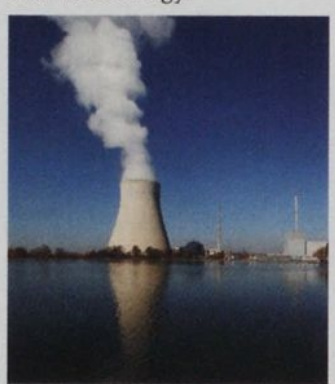
Palestinians aboard a bus wait to cross from Gaza to Egypt

Egypt Opens the Door to Gaza

ISRAEL Since 2006 the Gaza Strip has been sealed off from the world—its borders tightly controlled by an Israeli government wary of Gaza's rulers, the Islamist outfit Hamas. But on May 29, Egypt loosened Israel's grip on Gaza by lifting the restrictions on Palestinians seeking to cross from Gaza to Egypt. Though only a small number have gained entry so far, Egypt's willingness to aid Gazans signals a diplomatic shift since the popular uprising that ousted its longtime dictator (and ally of Israel) Hosni Mubarak. Gaza's other borders remain shut, but a new "freedom flotilla" carrying humanitarian aid will set sail soon to test Israel's ongoing blockade.

Lights Off for Nuclear Power Plants

GERMANY The government of Chancellor Angela Merkel confirmed that Europe's largest economy intends to phase out nuclear energy by 2022. Merkel's critics say the move is a populist gambit in the wake of dramatic electoral defeats for her ruling party. To make up for the lost power, Germany will boost investment in both solar and wind energy.



This nuclear plant in Essenbach won't steam for long

World by the Numbers

13
SYRIA Age of a boy tortured and killed by security forces of President Bashar Assad, evidenced by a shocking video

203
U.S. Ranking—dead last—awarded to the U.S. by a North Korean index of global happiness; North Korea came in second, China first

85,000
HAITI Estimated death toll of last year's devastating earthquake—far lower than Haiti's own count of 316,000—according to a new U.S. study

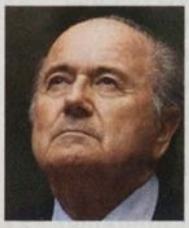
9
SAUDI ARABIA Days a female activist was in prison for circulating a video of herself driving; women are barred from getting behind the wheel

2.225 million
IRAQ Number of barrels of oil per day Iraq exported in May, the most since the 2003 U.S. invasion

CLOCKWISE FROM TOP LEFT: SUHAIB SALEM—REUTERS; DAR YASIN—AP; SOUTHERN MONGOLIAN HUMAN RIGHTS INFORMATION CENTER/AP; GREGOR SCHUSTER—GETTY IMAGES; MOISES CASTILLO—AP; ALEXANDRA BEIER—GETTY IMAGES; MOHAMMED HUWAIS—AFP/GETTY IMAGES

Mourning Militants—or Terrorists?—in Kashmir

INDIA *Thousands in Kashmir attended the funerals of two militants slain in a shoot-out with soldiers. Indian officials said the fighters served the Pakistan-based terrorist outfit Jaish-e-Muhammad, which operates mainly in Indian-controlled Kashmir. Many Kashmiris chafe at India's heavy military presence in the once idyllic Himalayan state.*



BLATTER

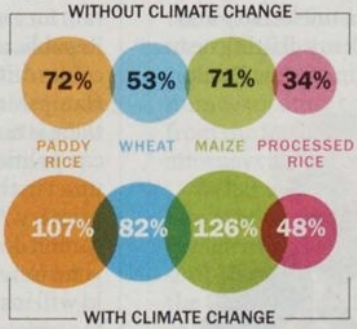
Soccer's Scandal Rolls On

SWITZERLAND **Sepp Blatter was re-elected president of FIFA, soccer's ruling body, despite calls to delay the vote amid allegations of widespread corruption. "Crisis? What is a crisis?" he said. Blatter has denied charges that Qatar bought votes to host the 2022 World Cup.**

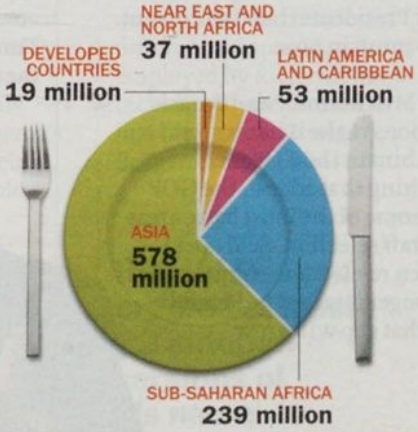
World Faces Epic Food Crisis

U.K. In a new study, the London-based charity Oxfam says the "international community is sleepwalking" toward humanitarian catastrophe, as rising food prices threaten to cause a range of demographic and social crises. The report, *Growing a Better Future*, says prices for basic staples may rise 120% to 180% of their current levels by 2030, partly as a result of climate change but also because of poor distribution and unfettered speculation in commodity markets by big banks and hedge funds. The trend can be reversed, says Oxfam, if governments improve regulation and focus on the plight of small farms.

The estimated rise in the cost of basic staples by 2030 ...



... is bad news for the world's undernourished



SOURCE: OXFAM

Hordes of Mongols Take to the Streets

CHINA Parts of Inner Mongolia, the region that forms much of China's northern border, were locked down following protests touched off by the death of a herder who was run over by a coal truck. Riot police were dispatched, and ethnic Mongol students were barred from leaving their campuses. Though less restive than some of China's other border regions—like Tibet—Inner Mongolia has been reshaped by decades of Han Chinese migration.

Students march in protest in Xilinhot, Inner Mongolia

By Ishaan Tharoor

Nation

The Big Questions

By Mark Halperin

When will the Republican field finally be set? It is close to complete now, but GOP donors, activists, governors and members of Congress (plus the press) are pining for someone—anyone!—else. Sarah Palin continues to flirt with a run (creating media mayhem whenever she behaves like a candidate), but she may not make up her mind until after Labor Day. Of course, predicting what Palin will do is as futile as anticipating Lady Gaga's next costume change.

Who else is most likely to get in, and why? The conservative governor of Texas, Rick Perry, has gone from a no to a maybe, but his rightward leanings make George W. Bush look like Al Franken, so he'll have little claim on the center, where the battle against President Obama will be waged. Still, Perry is a ferocious campaigner and fundraiser—if he remains dissatisfied with the GOP field, he just might go for it. Rudy Giuliani is taking a serious look at a run, based on the same center-right-man-of-action rationale he used in his tragicomic effort four years ago. Wisconsin Congressman Paul Ryan and New Jersey Governor Chris Christie both think they are stronger candidates and would be better Presidents than the current hopefuls, but neither is inclined to jump in now.

Who benefits from the chaos? Mitt Romney and Barack Obama. All the delays and distractions make it harder for Romney's would-be rivals to catch him in the GOP race. Obama is helped too, because anything that adds to the GOP carnival elevates the President. In some of the most basic areas of politics—opposition research, staff selection, field operations, surrogates—the Obama-Biden re-election campaign has already built up a huge lead. The longer it takes the Republicans to find a nominee, the wider that gap will grow.

MURPHY'S LAW

The Great New Hampshire Heist

While most of the media have gone ridiculously aflutter over Sarah Palin's latest diesel-powered tourist outing slash fan dance, a far more interesting caper is quietly unfolding in New Hampshire. Former New York governor George Pataki is airing a new ad on a Granite State TV station, WMUR. The ad comes from a Pataki-sponsored group called No American Debt and is perfectly attuned to New Hampshire's flinty primary electorate. So while others are playing cat and mouse with reporters, inspecting farms in Iowa with more hogs than people and pleading with legions of self-appointed Tea Party generalissimos, Pataki is running a very effective spot in New Hampshire.

I saw it and had to smile. My bet? Pataki is going to try to steal the New Hampshire primary: First, ignore all the silly inside games and get on television pronto with a good message. Move up quietly in the polls—with Mitt Romney sitting at a third of the vote, Palin unelectable and Tim Pawlenty drifting near the margin of error, Pataki could televise his way into second or third place in Granite State polls by midsummer. Then let the national media discover the Pataki surge and get bonkers about it. With that national attention, reboot the once massive Pataki money machine in New York State and start attracting more national money and support. Light the right match, and if it combusts correctly, stand back and watch the fire grow.

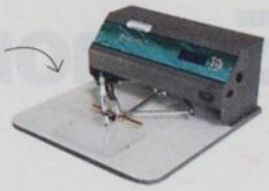
36

Weeks (approximately) until the Republican presidential primary in New Hampshire

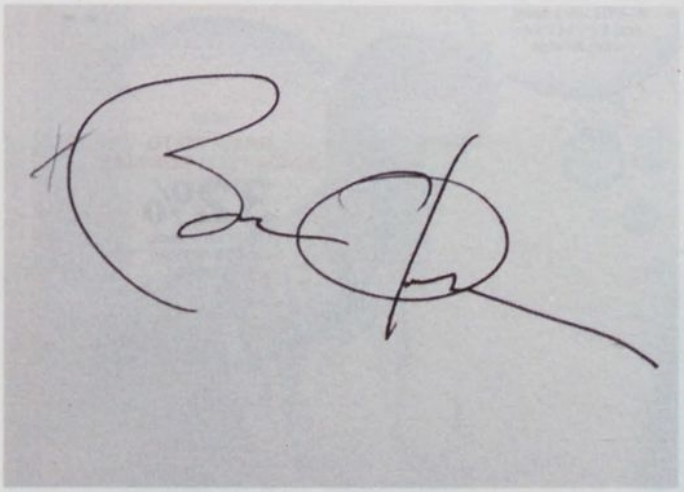
If Pataki generates real heat in New Hampshire, it will create an enormous headache for Romney. The last thing Romney needs is another can-do Northeastern governor in the race. It's even worse for the ideologically murky Jon Huntsman, who is banking on a very similar formula of independents and mainline Republicans to score his own New Hampshire upset. In a final Shakespearean twist, Pataki's old home-state rival Rudy Giuliani will be watching all this carefully and thinking dark thoughts about the idea of President Pataki. He too is hinting at a possible run.

Pataki's scheme is a long shot for sure—and the terrain for a socially moderate Republican candidate becomes difficult after New Hampshire—but then again, there is no boost in American politics as powerful as an upset in the New Hampshire primary. And even if this gambit doesn't make it beyond New Hampshire, Pataki will instantly catapult to the very top of the GOP's VP list. This old campaign dog still knows how to find the bone. —MIKE MURPHY

THIS PAGE: PHOTO-ILLUSTRATION BY WES DUVALL FOR TIME; FROM LEFT: ERIC GAY—AP; JASON KEMPIN—GETTY IMAGES; BILL CLARK—ROLL CALL/GETTY IMAGES; RAMIN TALAIE—BLOOMBERG/GETTY IMAGES; PATAKI: WILLIAM FARRINGTON—POLARIS; OPPOSITE PAGE, FROM LEFT: LARRY DOWNING—REUTERS/CORBIS; RUI BARROS



Richard Nixon employed 26 different autopen signatures



WHITE HOUSE MEMO

Ghostwriter. How to govern from two places at once? With the swipe of an autopen

By Michael Scherer

BARACK OBAMA'S AUTOPEN does not sleep. So, unlike the President, who was roused from a hotel bed recently at 5:45 a.m. in a French resort town to approve a last-minute extension of the Patriot Act, the machine never missed a wink. As the minutes ticked toward midnight on May 26 in Washington, Obama wrote a document authorizing an immediate phone call from the hotel hallway to the White House, where, in an undisclosed room in the building next door, the contraption whirred into motion. Pen touched legislation, and history was made: a robot signed a bill into law.

As a legal matter, this extraordinary act was not so controversial. Common law has long held that what matters in signing is intent, not the manual dexterity or personal attention of the signer. Just as wax seals held the power of law in 17th century Britain, U.S. banks accept rubber stamps on checks, even if they're imprinted by a subordinate. In 2005 the Bush Administration drafted a 29-page opinion laying out the legal case for the untested idea of legislative autopen signatures. In contrast to a number of other opinions from the Bush years, Obama's attorneys agreed completely.

What was remarkable, however, about the President's transatlantic scribble was its violation of the first rule of autopens: you do not talk about the autopen. "It really kind of messes with the myth," explains Automated Signature Technology's Lindsay De Shazo, the son of Robert De Shazo Jr., who first sold the autopen in the U.S. in 1944 and held a monopoly on the business, selling thousands of the things until his death 50 years later.

The third U.S. President, Thomas Jefferson, was the first to use a machine to record his signature. His device, a pantograph, held a pen that matched the movements of Jefferson's hand on a duplicate piece of paper. The first President to use a machine to sign a document in his absence was Dwight Eisenhower, who employed De Shazo's device when he ran Columbia University in 1949. It looked like a small table with mechanical arms, which followed a mold made from the signature that could be repeated at great speed with just about any type of pen. By the time John Kennedy took office, the autopen had made it into the White House as a time-saving way of handling routine correspondence.

Stephen Koschal, an autograph dealer in Florida who has written three books on presidential autopen signatures, began collecting copies decades ago, amassing a giant file that he has used to identify, among other curiosities, 26 different autopen signatures employed by Richard Nixon, including three that used just his initials. Ronald Reagan created at least 22 autopen versions of his name, including Dutch and Ron for more personal correspondence. "The White House doesn't like people talking about the autopen," Koschal confirms. But for dealers like him, the autopen matters a great deal: a handwritten signature can easily fetch 10 times more at auction than an automated one.

Ronald Reagan created at least 22 autopen versions of his name

In fact, it has long been the habit of official Washington to speak of the autopen only as a matter of last resort. Reagan's Housing Secretary, Samuel Pierce, blamed his agency's corrupt funding decisions on the assistant who controlled Pierce's autopen. Vice President Dan Quayle invoked the autopen to explain his signature below a request that a convicted campaign contributor be sent to nicer prison. "There is evidently some letter," pleaded Quayle, "that went out with my name attached to it." For a time, even the attorneys for Ken Lay, the former chairman of Enron, tried to argue that their client could not be held responsible for crimes committed with the Lay autopen.

The Obama White House, in this case, had no choice but to talk about the autopen, though aides were at pains to say as little as possible. Even after the device was used to extend the FBI's roving-wiretap authority, among other provisions of the law, Obama advisers declined to disclose the make or model of pen that was employed or to make it available for photographs.

The code of the autopen, in other words, persists. ■

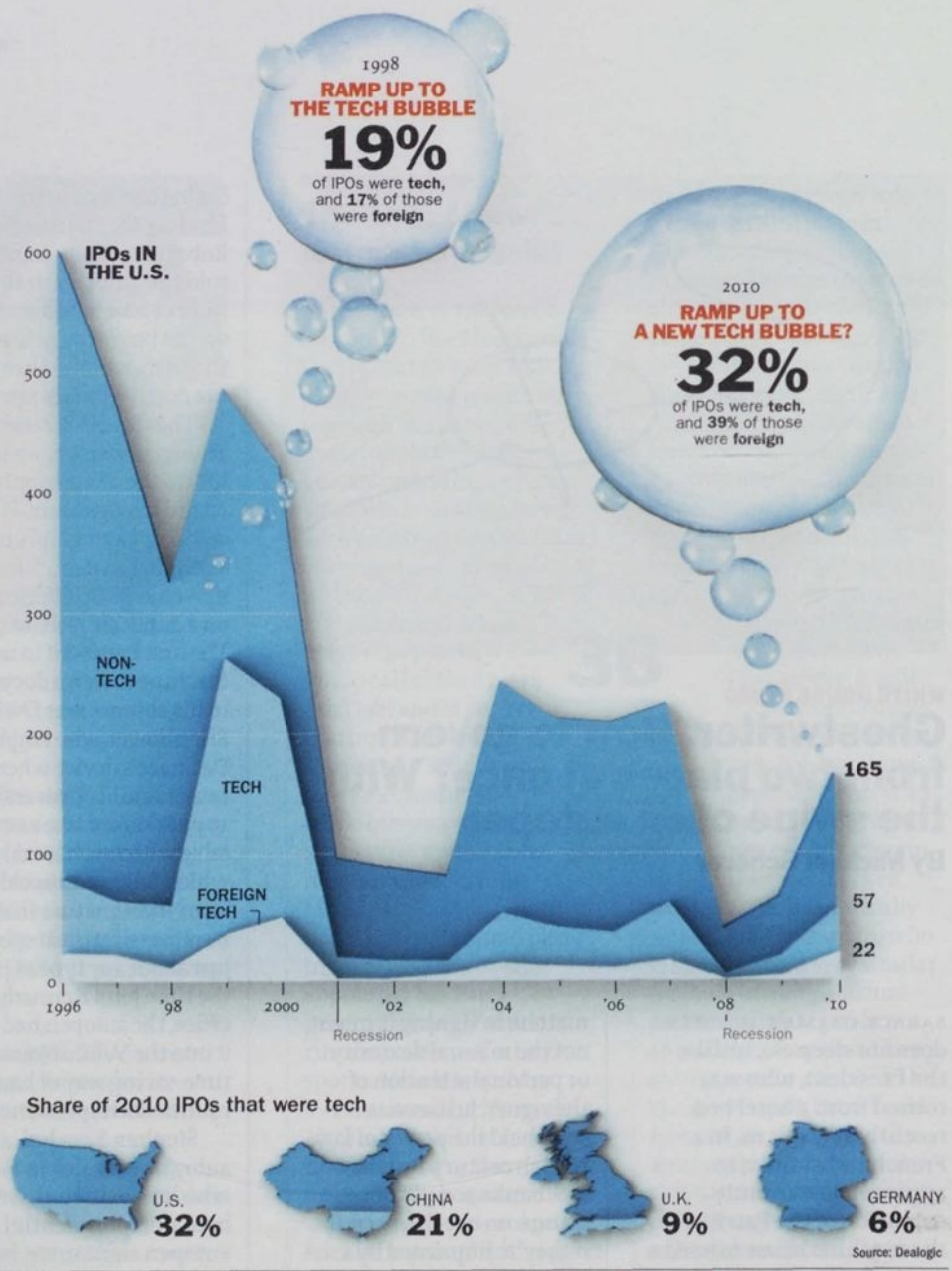
Economy

New Tech Bubble? The U.S. is the world's dotcom money hub

Ever heard of Yandex? The little-known Russian search engine raised a whopping $1.3 billion in its recent Nasdaq IPO. Sign of a new tech bubble?

Not if you compare the sheer number of tech IPOs now to the amount at the height of the dotcom boom. But the share of tech IPOs is growing. That's because there's been a sharp drop in U.S. IPOs overall, making tech IPOs a bigger part of the game. Emerging-market ventures are turning more to local exchanges to raise capital, but not for tech. Why? Because foreign companies think American investors have a sweet tooth for tech, making the U.S. a global tech magnet. That is, until the music stops again.

—ROYA WOLVERSON



GOVERNMENT

Cutting (Ridiculous) Red Tape The White House streamlines unnecessary regulations

President Barack Obama has essentially been treated as a secret socialist by the business community since the day he moved into the White House. Not a good rep for re-election. So in January, Obama promised to "root out regulations that conflict, that are not worth the cost or that are just plain dumb." On May 26 the White House released the results. Some of the particularly dumb ones:

The EPA will no longer classify spilled milk at a dairy farm as an oil spill, saving $146 million. (No word on whether they will cry over it.)

The Transportation Department will apply certain kinds of railroad safety equipment "only where they are actually needed"—seriously—saving up to $1 billion.

The Treasury Department will drop references in some of its rules on Yugoslavia, a country that broke up in 2003.

The Occupational Safety and Health Administration will eliminate more than 1.9 million annual hours' worth of "redundant reporting requirements" for air quality, saving $40 million a year.

—BRYAN WALSH

PRICE POINT

Cheap Apple. Study shows a big-city shopping discount

How much less a loaf of white bread costs in New York City vs. Memphis, says a new Columbia University study that compared the prices of identical food items around the country

DIGITAL VISION/GETTY IMAGES

Milestones

DIED

Gil Scott-Heron

By Chuck D

A week before Gil Scott-Heron's death on May 27 at 62, I recorded a guest vocal on a remix of his song "Third World Revolution." I was honored, of course. I first met Gil when we appeared on a *CBS Morning News* show in 1988. I'm typically quiet in the presence of royalty—musical or otherwise—so I just listened carefully that time and on the few occasions we got together after that.

Obviously, Gil's art, music and opinion formed a basis for rap music. His performances, with their ad-lib-lecture-poet-style commentary, were like his own onstage play-by-play. And though he didn't like to claim responsibility, he clearly is a cornerstone of what we do and why we do it, especially when we get it right. No him, no us.

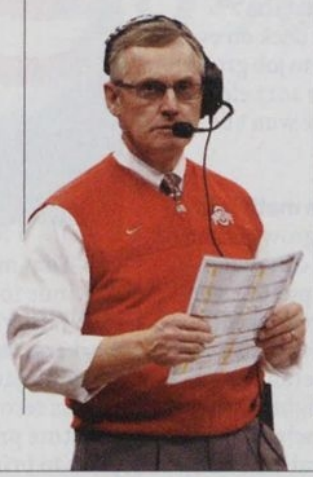
What gets me is that for the past 25 years, folks had said he was so frail. And yet he kept keeping on, smashing great songs, albums and concerts, all of which were a testament to his will and strength. He was and will remain a man whose powerful lines can knock you over in under 140 characters.

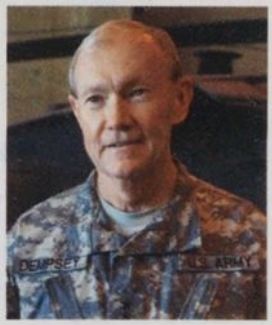
Chuck D is the leader of the rap group Public Enemy

RESIGNED

Jim Tressel

Ohio State football coach Jim Tressel, who resigned under pressure on May 30, once wrote a book, *The Winners Manual*, that espoused character and the moral high ground. "Discipline is what you do when no one else is looking," Tressel wrote. Yet Tressel failed to report to school officials that his players traded memorabilia for cash. And when those rule breaches went public, he lied, saying he knew nothing about them. Now a *Sports Illustrated* story alleges that the misconduct by Ohio State's players was more widespread than previously believed. Tressel was a winning coach—he finished 106-22 at Ohio State—who seemingly possessed great discipline. But he failed to heed his own words while covering up the missteps that cost him his job. Tressel might as well have written a manual on hypocrisy. —SEAN GREGORY





APPOINTED

Martin Dempsey

In the latest reshuffling of his national-security team, President Obama announced the appointment of Army General Martin Dempsey as the next Chairman of the Joint Chiefs of Staff. Dempsey, the current Army chief of staff, has a diverse background: he holds a master's degree in English and commanded one of the largest divisions in U.S. Army history during the first year of the Iraq war. If he stays for the next four years (the typical tenure of the past few Chairmen), Dempsey will oversee the drawdown in Afghanistan and further budget cuts at the Pentagon, challenges that will require his intellect and diplomatic skills more than a cavalryman's swagger. —NATE RAWLINGS

DIED
Jeff Conaway, 60, star of the television show *Taxi*; he played *Grease*'s Danny Zuko on Broadway but starred as sidekick Kenickie in the 1978 film version.

MOVING
The NHL's Atlanta Thrashers, to Winnipeg, returning hockey to the Manitoban capital after a 15-year absence; they are Atlanta's second lost NHL team.

ANNOUNCED
By the Justice Department, new charges against 9/11 planner Khalid Sheikh Mohammed and four others, who will be tried by military tribunal at Guantánamo Bay.

NOMINATED
John Bryson, former president of Edison International utility, for U.S. Commerce Secretary; Bryson was also a co-founder of the Natural Resources Defense Council.

BROKEN OUT
A row between Germany and Spain, after scientists in Hamburg blamed Spanish cucumbers for an *E. coli* outbreak that killed 16.

DIED
Leonora Carrington, 94, Surrealist painter and sculptor and partner to Max Ernst; her self-portrait is in the collection of the Metropolitan Museum of Art.

CLOCKWISE FROM TOP LEFT: GILLES PETARD—REDFERNS/GETTY IMAGES; KRISTIN HALL—AP; MATTHEW STOCKMAN—GETTY IMAGES

Rana Foroohar

The 2% Economy

A funny thing happened on the way to economic recovery: a slowdown

JOHN KENNETH GALBRAITH, ONE OF the most famous practitioners of the high-minded guessing game known as economics, once noted that in the dismal science, "the majority is always wrong." How else to explain the fact that so many economists upgraded their growth forecasts for the American economy at the end of last year, often to well above 3%, when the numbers so far this year have come in below 2%? The plunge is due to many things, from higher food and oil prices to supply-chain disruptions in the wake of the Japanese nuclear disaster to a terrible housing market. (The latest Case-Shiller data show that home prices have fallen further than they did during the Great Depression.)

But the bottom line is that the 2% economy is reshuffling the deck on everything from the debt debate to job growth to the likely outcome of the 2012 elections. Here in the U.S., there won't be many winners.

To understand why, a little math is in order. When the economy grows faster, tax receipts go up too. That can make a big difference in the debt picture. For example, if the economy grew steadily at, say, 3.9%—which the Fed, in its own moment of irrational exuberance back in February, predicted it might for the year—our national debt (including Social Security and other entitlements) would decline over the next decade from roughly 100% of GDP to a relatively svelte 83%. No more excruciating conversations about cutting Grandma's health benefits or squeezing another five kids into already overcrowded classrooms. If, on the other hand, we grow at 1.8% over the next 10 years, debt rises to 144% of GDP. That makes us Greece.

Except that we don't have Germany to bail us out. And we have 13.7 million unemployed people. But with debt levels that high, the government would find it impossible to throw any more money at the employment problem. Even now, budgets for things like job retraining and government-sponsored work programs are being whittled back. Add to that mix depressed consumer spending, which in May dropped to a six-month low. That means companies will likely continue to sit on their $1 trillion pile of cash rather than using it to hire more workers. The result is more of what we've already seen—namely, an anemic, jobless recovery. The McKinsey Global Institute predicts that it will take five years to bring employment back to its prerecession peak. In the 2% economy, you can add an additional year or two to that estimate, easy.

That's bad news for any politician currently in office—from President Obama to the House Republicans, many of whom come from swing districts. "All incumbents have trouble when the economy is down," notes Berkeley professor and former Clinton Labor Secretary Robert Reich. "I'd be concerned if I were in the White House, and if the Republicans had shown any signs of coming up with a viable candidate, I'd be extremely concerned."

Whatever the election outcome, it's clear that the 2% economy heralds an era of even more divisive, populist politics—both at home and abroad. As low growth ensures that the dollar gets weaker and U.S. wages stay flat, Americans will continue to feel poorer, especially in comparison with faster-growing nations like China, which many Americans blame for taking their jobs. Meanwhile, Beijing will fret about the value of its nearly $3 trillion in foreign-exchange reserves, most of which is held in ever weakening dollars, and leaders jockeying for power in the run-up to a politburo changeover in 2012 will want to be seen as standing up for national interests. All of that is likely to turn up the heat on the usual trade and currency battles between Washington and Beijing, which could be growth-damaging if it leads to a new bout of protectionism. That is the worst characteristic of the 2% economy: its effects tend to snowball.

Of course, there are still economists who say growth will pick up toward the end of the year. (Though if Galbraith is right, the more who do, the more we should worry.) Whatever happens, there's no changing the bigger trend line. The U.S. and the world are in the middle of an economic rebalancing that hasn't been seen since the rise of the great European empires in the 1500s. Power is shifting from West to East, technology is rejiggering the relationship between growth and jobs, and both trends are intersecting in ways that have undercut the upward trajectory of our economy. It's uncharted territory, in which policymakers and economists alike are flying blind. Dismal science, indeed. ■

ILLUSTRATION BY HARRY CAMPBELL FOR TIME

HHONORS
HILTON WORLDWIDE

SAVE UP TO 40%

SEE MORE. DO MORE. SPEND LESS.

BOOK NOW AND SAVE DURING THE GREAT GETAWAY.

Pack your bags and start your next adventure with **The Great Getaway**. Save up to 40% at participating hotels when you stay by September 5th at any of the 10 distinct hotel brands within the Hilton Worldwide portfolio. With destinations in 82 countries, you are sure to have more to remember.

BOOK BY AUGUST 22ND AT HHONORS.COM/GETAWAY

WALDORF ASTORIA HOTELS & RESORTS
CONRAD
Hilton HOTELS & RESORTS
DOUBLETREE BY HILTON
EMBASSY SUITES
Hilton Garden Inn
Hampton
HOMEWOOD SUITES Hilton
HOME2 SUITES BY HILTON
Hilton Grand Vacations

Book between May 13, 2011 and August 22, 2011 and stay at participating hotels within the Hilton Worldwide portfolio between May 27, 2011 and September 5, 2011. Some hotels may extend offer period. Subject to availability. **Full non-refundable prepayment required at time of booking. Your credit card will be charged immediately for the total amount quoted for the entire stay as reserved and refunds or credits will not be issued unless otherwise indicated by local law. Must book at least fourteen (14) days in advance of arrival.** Discounts vary and range from 15% - 40% off select rates based upon days of the week a stay is consumed, geographical location of hotel and/or by brand. Blackout dates and length of stay restrictions may apply. Additional terms and restrictions apply; www.HHonors.com/Getaway

Turn on these headphones and the world becomes a quieter place, as noise around you fades into the background. You can **focus on your music,** perhaps even discovering new depths and subtleties. Or take advantage of the noise cancellation to quietly **relax and think in peace.** The QC®15 headphones are our best, the quietest we've ever made. No other headphones offer you the same combination of less noise, lifelike music, lasting quality and a comfortable fit. As Seth Porges of *Popular Mechanics* reports, "Compared to the competition...the QC15s are vastly superior." We invite you to hear the difference these highly acclaimed headphones make on planes, at home and in the office for 30 days, risk free. When you call, ask about making 12 easy payments, with no interest charges from Bose.* And when you order now, you'll receive **free shipping.**

Bose® QuietComfort® 15
Acoustic Noise Cancelling® headphones

To order or learn more:
1-800-729-2073, ext. Q8269 or visit Bose.com/QC

BOSE®
Better sound through research®

*Bose payment plan available on orders of $299-$1500 paid by major credit card. Separate financing offers may be available for select products. See website for details. Down payment is 1/12 the product price plus applicable tax and shipping charges, charged when your order is shipped. Then, your credit card will be billed for 11 equal monthly installments beginning approximately one month from the date your order is shipped, with 0% APR and no interest charges from Bose. Credit card rules and interest may apply. U.S. residents only. Limit one active financing program per customer. ©2011 Bose Corporation. The distinctive design of the headphone oval ring is a trademark of Bose Corporation. Financing and free shipping offers not to be combined with other offers or applied to previous purchases, and subject to change without notice. Risk free refers to 30-day trial only, requires product purchase and does not include return shipping. Delivery is subject to product availability. Quote reprinted with permission.

Joe Klein

To read Joe's blog posts, go to **time.com/swampland**

The Politics of Self-Delusion

How Barack Obama and Paul Ryan both misread their mandates

IT WAS A DELICIOUS INSIDE BIT OF politics: Bill Clinton and Congressman Paul Ryan having a private, backstage chat about Medicare, captured by an ABC News camera. Clinton says he's happy that the Democrats won the House special election in New York, but hopes his party doesn't use it as an excuse to "do nothing on Medicare." Ryan suspects that's exactly what is going to happen: "It's going to sink into paralysis." Clinton invites Ryan to give him a call. Ryan says he will.

Paul Ryan should make that call, for three reasons. First, he's right—serious Medicare reform is over for now (although cosmetic reform is possible as part of the coming debt-ceiling negotiations). Second, it's Ryan's own fault that it's over. His extreme privatization proposal gave the Democrats a sledgehammer with which to bash Republicans in the 2012 elections. Third, Clinton has extensive personal experience with what happens when politicians try to take the public somewhere it's not willing to go, and he also has had the near unique experience of sitting down with the opposition party and figuring out a way to balance the budget. Ryan, on the other hand, has been knocked silly by the chronic disease that afflicts latter-day American politics: the delusional hubris that accompanies victory.

Think about the past three years. In 2008, Barack Obama wins a smashing electoral victory, largely because the public believes he's a calm, cool adult who can lead the country out of an economic crisis. But for some crazy reason, he decides to focus much of his attention on passing a universal health care plan that has been the long-term dream of his party. This, despite polls that indicate nearly 80% of the public are satisfied with the health care they already have. The plan passes, but it's so complicated, the public isn't sure what's in it (and is wondering why the President hasn't focused similar attention on the economy), and Obama's party is clobbered in the 2010 elections.

Enter the Republicans. The public is still clamoring for economic relief. But for some crazy reason, the GOP, led by Ryan, decides to focus much of its attention on

privatizing old-age entitlements, which has been his party's long-term dream. This, despite polls that indicate nearly 80% of the public love Medicare and don't want to see it changed. The Republican plan passes the House—and Ryan's party is defeated in a special election in a reliably Republican district, with the prospect of more seats to be lost in 2012.

All of which would appear to fly in the face of standard operating cynicism about American politics. Aren't politicians supposed to pander? Aren't they supposed to be pragmatic to a fault—focusing on short-term relief and eschewing serious, long-term problems like reforming the health care system and attacking structural deficits? Why, in a media atmosphere dominated by infotainers and telecharlatans, have our politicians suddenly gone all high-minded on us?

The answer is, they haven't. They just define "the public" differently than we do. Their public is smaller, and also plural. One of those mini-publics is their base: the diehards who show up for every primary and midterm election. Because of gerrymandering, those elections usually yield a crop of Congresspeople who reside on the left and right wings of their respective parties. And Congress itself constitutes a second, crucial public. If a President wants to get things done, he has to pay close attention to what the congressional members of his party want. And so Obama, who didn't even propose universal health care in 2008, finds himself enslaved by the desires of Nancy Pelosi and Henry Waxman. And John Boehner finds himself the servant of the Tea Party and hermetically sealed ideologues like Ryan. "It is a serious structural problem that has developed over the past 40 years," says William Galston of the Brookings Institution. "Both the electorate and the political parties are growing more polarized—but the parties have moved farther and faster to their respective sides of the spectrum than the public has." The result has been a series of public rebellions in reaction to ideological overreach by both parties.

There is a cure for this disease, but it's not high-minded. It is called politics, especially the sort of pragmatic politics Clinton practiced after he had his own hubristic, near-death, health care hallucination. It is an ugly process, involving compromise and small-time bribery for the public good—the slathering of pork on recalcitrant Representatives, the trimming of ideological sails. But it can work, even on an issue as fraught as Medicare. It is the reason why a newly enlightened Paul Ryan should pick up the phone. ■

PHOTO-ILLUSTRATION BY MATT DORFMAN FOR TIME; PHOTOS: GETTY IMAGES (2)

Deepening Divide

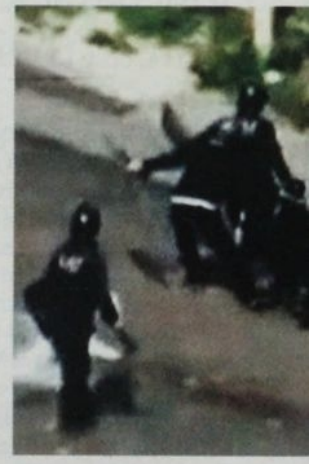
The Assad regime's brutal crackdown hasn't halted Syria's pro-democracy protests, but it may yet turn them into a sectarian conflict

BY ARYN BAKER/BUQAYA, LEBANON

LIKE MANY OF THE SYRIAN FARMING communities near Lebanon's northern border, Aarida, as seen from the Lebanese village of Buqaya, offers a bucolic scene worthy of a postcard. Willow trees trail their drooping branches through a stream that winds past plots of ripening strawberries and golden fields of wheat. A small stone bridge, topped by a Syrian flag snapping in the breeze, shelters a family of bullfrogs whose chatter lays the sound track for an early-summer calm.

Three weeks ago, that peace was shattered by the screams of Aarida's women as they poured across the bridge, wailing that their husbands and sons, who had gone out to protest against the regime of Syrian President Bashar Assad, were being attacked by Syrian troops. Soon residents of Buqaya heard approaching gunfire, and the air was filled with the scents of burning houses and fields. Hassan Syed, a Lebanese who lives in Buqaya, watched the horror unfold from his side of the river. That night, he estimates, some 3,000 Syrians fled to Buqaya seeking refuge. Thousands more from other violence-racked Syrian towns crossed over the next day, wading through the hip-deep water when the bridge was closed. Then Syrian border guards started shooting at anybody trying to get across by any means.

"Now no one crosses the river," says Syed, 25. As we talk, a flicker of movement across the stream catches his attention. A sniper watches from a barricade, his gun pointed in our direction. We move behind a bullet-pocked wall. Most of Aarida's residents fled, Syed explains to me; in their wake arrived busloads of soldiers and thugs. Syed watched as they ransacked the homes of antiregime protesters, loading up on looted washing machines, ovens and refrigerators. They trampled the strawberry fields and stole cattle. Nobody is quite sure where they took their captives. "In Syria, the prisons are so full, they are putting men in stadiums and schools," says Syed—an allegation backed by refugee accounts and human-rights-monitoring organizations. "That regime is a brutal killer with no respect for anyone."



Scenes from a revolution *Amid a media blackout, anti-Assad protesters have used cell-phone cameras to convey their plight to the world*

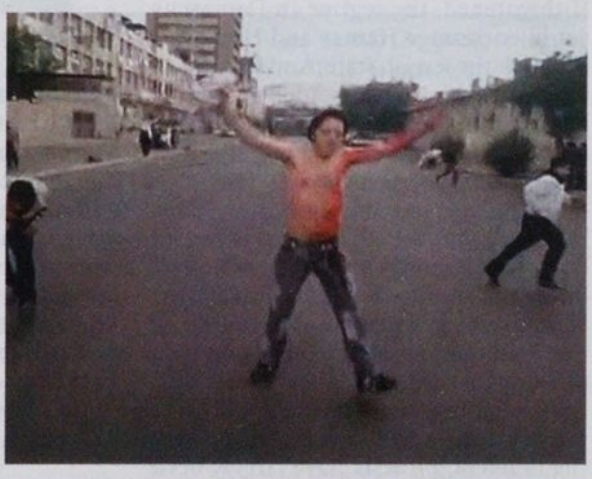
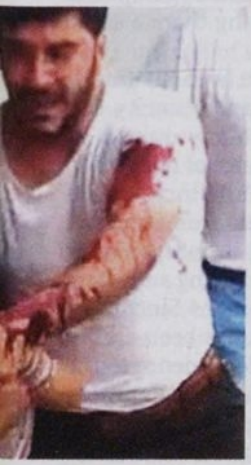
FROM TOP LEFT: REUTERS/LANDOV; ABACA USA/POLARIS (2); REUTERS/LANDOV; ABACA USA/POLARIS; AFP/GETTY IMAGES; ABACA USA/POLARIS (2); REUTERS/LANDOV; AFP/GETTY IMAGES; ABACA USA/POLARIS (2)









The Syrian government maintains that the protests, now in their third month, are an armed Islamist uprising. It denies the widespread reports of torture, including the case of a 13-year-old boy whose battered and castrated corpse was returned to his family a month after he was picked up at a protest by security forces. But cumulative accounts from eyewitnesses, refugees and video footage clandestinely uploaded to the Internet point to evidence of a scorched-earth policy that has so far claimed more than 1,000 lives, according to Ammar Qurabi of Syria's National Organization for Human Rights. More than 10,000 have been detained. The tough line not only precludes hope for reconciliation but also sets the stage for the very chaos and sectarian strife the regime warns will roil the country should it collapse.

It is not just Syrian lives at stake. The country, with 22 million people in an area slightly larger than North Dakota, is a pivotal linchpin in a volatile region. Should Syria shatter, it could profoundly destabilize neighbors Iraq and Jordan. Civil war could ignite sectarian conflict in Lebanon and Turkey, which, like Syria, have several religious minorities. Home to the leader of Hamas and a sponsor of Hizballah, Syria also guards the Golan Heights, occupied since 1967 by Israel. If threatened, the regime in Damascus could encourage Hamas and Hizballah to attack the Jewish state. And were Syria to collapse entirely, it could turn into a battleground for militias supported by the region's major powers: Shi'ite Iran and Sunni Saudi Arabia.

These dire scenarios may not yet be inevitable, but their likelihood increases each week as mostly nonviolent protesters face down the brutal regime. Predictions are dangerous, cautions the regional director of an international think tank, who asked not to be identified by name. "Still, I think it's safe to say that things will never go back to the way they were," he says. For the moment, protests have largely been limited to rural areas and the suburbs of major cities—demonstrations in central Damascus and Aleppo were immediately, and viciously, smothered. As long as Assad's urban base stays on the sidelines, says the think-tank director, "the regime could hang on for months. But if Damascus moves, it's game over."

To other Syria watchers, the question is not so much when the regime will fall but how. If the transition is managed—either through long-promised democratic reforms or some sort of internal coup that leads to elections—it could benefit the region. But if Syria is torn apart by the cycle of protests, crackdowns, resentment and brutality, it would rend the fabric of the Middle East. Outside powers can play only a limited role in shaping events, however. The U.S. and other Western nations have stiffened economic sanctions already in place against the regime, but they are not expected to weaken Assad's resolve. Military intervention is not an option: unlike Libya's Muammar Gaddafi, Assad has a powerful backer in Iran. Syria's fate lies in the hands of its citizens—a daunting prospect for people who have lived under oppression for nearly five decades.

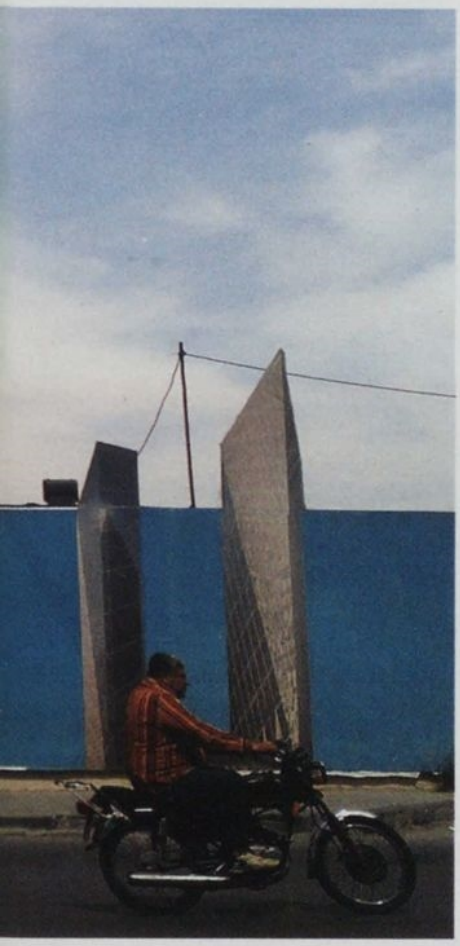
Regime Without Remorse

THE PROTESTS AGAINST THE ASSAD GOVernment were inspired by the revolutions in Egypt and Tunisia. Demonstrations drew from the Sunni majority as well as a Shi'ite minority known as the Alawites, which provides much of the country's ruling class. "It sounds like a cliché, I know," says Rami Nakhla, a Syrian cyberactivist working underground in Lebanon. "But we want what everyone in the region wants: an end to corruption, the ability to choose and dismiss our leaders, freedom of speech and freedom from fear."

The government's violent response to the initial protests was typical of a deeply entrenched regime that has consolidated power through terrorism, collective punishment, mass detentions and the oppression of intellectuals and politicians for the past 48 years. Formed in the postcolonial tumult that saw nearly a dozen coups in as many years, Syria—run for three decades by Hafiz Assad and for a fourth by his son Bashar—is built from a complex web of economic, social, tribal and marital interests. Alawites like the Assads control the main levers of power, including the military and security apparatus, but influential Sunni families get special business privileges, giving them a stake in the regime's survival.

At the center of the web sit multibranched intelligence and security services acutely attuned to any quivers of dissent. A brute intolerance of opposition has long been the regime's hallmark: when Islamists in the city of Hama rose in protest against the government in 1982, security forces shelled the town, killing anywhere from 10,000 to 40,000 civilians. Since then, the Islamist movement has been all but obliterated, lending little credence to the idea that the regime is currently fighting a second Islamist uprising.

When Bashar Assad succeeded his



Big Brother *Assad's visage is everywhere, even on an advertisement for a construction project*

father to the presidency in 2000, it was widely hoped that the soft-spoken, British-educated ophthalmologist would temper the security-state brutality and usher in economic and political reforms. He courted foreign investment, privatized state-owned utilities and introduced mobile phones and the Internet. But the economic changes also opened the door to corruption, largely benefiting the Alawites. And political reforms never materialized: emergency laws first imposed in 1962 remained in force, giving the regime draconian powers. Resentment began to rumble—not only among the Sunnis, who make up 74% of the population, but also among those Alawites who were left out of the distribution of spoils. But few dared raise their voices in anger.

Then came the Arab Spring, and long-quiet voices of dissent gained strength and momentum. Young activists took advantage of the tools Assad had made available to campaign against him: video-enabled mobile phones to record abuses by his security forces, and Internet connections to beam news around the world. "You can't quash an uprising if millions of people are acting like their own independent news stations," says Nakhla, who has helped take the footage to an international audience.

While some protesters are educated urbanites like Nakhla who articulate their cause in English with the fluid lingo of political empowerment, many come from rural poverty—illiterate farmers who have seen little benefit from Assad's economic reforms. Many protesters are from small towns like Aarida, where their only experience of government is a security force that allegedly dabbles, Mafia-like, in corruption and smuggling. Few have access to the Internet. Instead they gather in mosques and coffee shops to plot strategy and coin slogans. And they do so with full knowledge of the repercussions. "We remember Hama," says Sami, an organizer of Aarida's first protest, who asked not to be identified by his whole name. "We know what the regime can do," he continues, "but the way we live now, we are already dead. So we might as well be dying for something."

The demonstrations have spread from small border towns to larger cities. But their size has never matched those in Cairo's Tahrir Square. Many Syrians are frustrated with government brutality and corruption, but they appear to be willing to compromise on democratic rights for a reasonable standard of living. "I would say 20% of people here are with [Assad] and 15% are against," says a senior Western diplomat in the region. "The other 65% just don't want trouble or violence."

Activists are hoping that Hamza al-Khatib, the 13-year-old alleged torture victim, will be a catalyst to impel the silent majority to the streets. A poster of him has been featured prominently at recent protests, and "Hamza! Hamza!" has become a new rallying cry. A Facebook page created in his name on May 28 has logged more than 67,000 supporters. "There is no place left here for the regime after what they did to Hamza," reads one comment.

With all the deaths and detentions, it is difficult to see how the regime can regain public trust. Mounting resentment can be seen in the protesters' slogans, which started with calls for reform and now demand the end of the regime. After 11 years of empty promises, few believe Assad is genuinely willing to change: even a May 31 promise to free all political prisoners was met with general skepticism. After all, though he repealed the emergency law on April 19, Assad's forces have continued to detain and disappear opponents.

'You can't quash an uprising if millions of people are acting like their own independent news stations.'

—RAMI NAKHLA, A SYRIAN CYBERACTIVIST BASED IN LEBANON

Dangerous Divisions

DESPITE SYRIA'S LONG HISTORY OF INTERFAITH TOLERANCE, Assad has been able to use the specter of sectarian conflict to justify his continued crackdown. It may prove a self-fulfilling prophecy. In recent weeks, Alawites have largely been absent from demonstrations, partly because of checkpoints that prevent protesters from leaving Alawite-dominated districts but also because of a propaganda campaign that preys on Alawite fears of persecution by Sunnis should the regime collapse. Stories of torture at the hands of the heavily Alawite security establishment exacerbate the divide. One Sunni from Aarida, recently released from prison, showed me cigarette burns on his hands—punishment from his Alawite torturer, he said, for refusing to declare that Bashar Assad was his god.

"Many of the Alawites want to live in peace," says Sami, the protest leader from Aarida. "But others were looting our property. They attacked us. So, sure, there will be a reaction against them." The regime is making the most of Alawite anxieties. "The government is arming the Alawites," admits a first lieutenant in the Syrian security services via telephone. "They are warning that the regime might fall, and they should be prepared to defend themselves."

If nothing else brings Assad down, the economy could. The Syrian pound has lost value on the foreign-exchange markets, and investors are pulling out of major projects. Syria's GDP was predicted to grow 6% this year; now a contraction is more likely. In six months, says the diplomat, "the economy will have taken such a battering that Assad will have lost the support of the majority of Syrians." Even longtime Assad loyalist Shaadi Halaq, an air-conditioning tycoon based in the city of Homs, makes it clear that his support for the regime is conditional upon a thriving business environment. "All I want as a Syrian citizen is to live in prosperity and to see safety come back to my country," he tells TIME by phone. Neither is likely while Assad remains in power. —WITH REPORTING BY RAMI AYSHA/BEIRUT AND A CORRESPONDENT IN SYRIA ■

AP

Let's Make a Deal

The budget battle won't end without Mitch McConnell's O.K. And after months on the sidelines, the wily Republican is back at the table

BY JAY NEWTON-SMALL

FOR THE FIRST TWO YEARS OF Barack Obama's presidency, Mitch McConnell never got a phone call from the White House. Instead, he sat in his office on the second floor of the Capitol and plotted Obama's political demise. Now, ask the Senate Republican leader when he last spoke to Vice President Joe Biden, and he lets out a laugh, his golden presidential-seal cuff links—a gift from George W. Bush—flashing as his hands go to his face. "Today," he says.

After a few months on the sidelines of the endless budget battles, McConnell is back at the table. A White House that has long ignored him knows that any grand bargain on the budget and the debt limit won't pass without his O.K. McConnell knows that too, and he has stepped out in recent weeks to argue that his renewed support in the Biden-run debt talks makes all things possible. "Divided government is the only government that can do transformational, difficult things," he says in an interview. And what about the defeat of Obama, something he named as his top priority earlier this year? "That's next year," he says. "The question this year is, What are we going to do for the country?"

Since Obama's election, McConnell has mostly treated compromise like a dirty word, derailing his GOP colleagues when they tried to bargain with Democrats. During the 2009 health care debate, he reportedly threatened to boot Iowa's Chuck Grassley from his Judiciary Committee slot if Grassley endorsed the Obama-backed reform bill. (Neither Senator will confirm or deny this.) Last year, McConnell pressured South Carolina Republican Lindsey Graham to abandon bipartisan collaboration on climate change and immigration. And McConnell undid months of work by top Senate appropriators on the 2011 budget and imposed a three-month freeze on the White House instead. "He doesn't twist arms so much as he reminds you how unhappy others will be if you go down this path—how hard it'll be—and the importance of sticking together," says Maine Senator Olympia Snowe, a moderate Republican.

It was the same story this spring, when it became obvious that McConnell wasn't enthusiastic about deficit-reduction talks by a bipartisan Gang of Six Senators—three from each party—who'd been working for months on a grand fiscal bargain. On May 10, McConnell made it clear that the only talks that counted were the ones that involved Biden, and through Biden, McConnell. A week later, the Gang of Six fell apart.

When McConnell wants to deal, the Senate is miraculously transformed from a parking lot to a drag strip. In December, McConnell and Biden struck a surprise bargain that extended Bush's tax cuts, repealed "Don't ask, don't tell" and led to the ratification of a nuclear arms treaty with Russia. "The Vice President," says Biden's chief of staff Bruce Reed, "admires Mitch McConnell as the best vote counter he has ever known."

McConnell, 69, began his political career as an intern for Senator John Sherman Cooper, a moderate Kentucky Republican who collaborated with President John F. Kennedy, and he later worked in the Ford Administration. But since arriving in the Senate in 1984, McConnell has toed a staunchly conservative line. "He was a very moderate Republican, and I was a great admirer of his," McConnell says, pointing to a portrait of Cooper hanging in his office. "But I think we all change over the years, and I am clearly more conservative than my earlier role model."

'The Vice President admires Mitch McConnell as the best vote counter he has ever known.'

—BRUCE REED, CHIEF OF STAFF FOR VICE PRESIDENT JOE BIDEN

As bipartisan budget and debt-ceiling talks at Blair House intensify, the question is, What will McConnell want in exchange for a hike in the debt ceiling? Deeper cuts in federal spending look certain, perhaps $6 trillion worth. McConnell says he is opposed to new taxes but is open to a short-term debt-limit extension—one that would require another debt-limit vote next year and the additional cuts that come with it. McConnell prefers that any deal include changes to Medicare, though that looks less likely now that the GOP is wondering if Paul Ryan's Medicare plan is a recipe for electoral suicide. On that point, McConnell tries to sound sanguine. "I think we will have done something significant to alter the trajectory long term on Medicare well before the election," he says.

Both sides are settling in for an extended siege. The White House says both taxes and spending must be part of any final deal to raise the debt ceiling but doesn't have a lot of leverage to make that happen. McConnell doesn't expect an agreement until early August, just before the Treasury Department runs out of accounting tricks to keep the government operating.

In any case, McConnell is in no hurry to concede first. He waited a long time for the White House to pick up the telephone. He can wait a while longer. ■

Photograph by Ethan Hill for TIME

Innovate Better

Everyone agrees it's key to America's future. But where do we focus innovation, and how do we fund it?

BY FAREED ZAKARIA

"THE FIRST STEP TO WINNING THE FUTURE IS ENCOURAGING American innovation." That was Barack Obama in his State of the Union address last January, when he hit the theme repeatedly, using the word *innovation* or *innovate* 11 times. And on this issue, at least, Republicans seem in sync with Obama. Listen to Mitt Romney or Newt Gingrich or Mitch Daniels and the word *innovation* pops up again and again. Everyone wants innovation and agrees that it is the key to America's future.

Innovation is as American as apple pie. It seems to accord with so many elements of our national character—ingenuity, freedom, flexibility, the willingness to question conventional wisdom and defy authority. But politicians are pinning their hopes on innovation for more urgent reasons. America's future growth will have to come from new industries that create new products and processes. Older industries are under tremendous pressure. Technological change is making factories and offices far more efficient. The rise of low-wage manufacturing in China and low-wage services in India is moving jobs overseas. The only durable strength we have—the only one that can withstand these gale winds—is innovation.

Even more troubling, there are growing signs that the U.S. no longer has the commanding lead it once did in this area. Two reports from the Boston Consulting Group and the Information Technology & Innovation Foundation (ITIF) that use hard measures such as spending on research, patents and venture funding as opposed to surveys find that the U.S. ranks not No. 1 but No. 8 and No. 6, respectively. In fact, the ITIF rankings have a category that measures how much a country has improved its innovation capacity from 1999 to 2009, factoring in measures like government funding for basic research, education and corporate-tax policies. Of the 40 countries analyzed, the U.S. came in dead last.

What is innovation? We don't really have a good fix on the concept. We know it when we see it. But this much is clear: it encompasses more than just scientific or technological breakthroughs, as becomes apparent when you look at which companies are considered the most innovative. In the world of business rankings, it is very rare for a company to rank first in every survey, since the criteria often vary greatly. Yet when tackling innovation, one company, Apple, utterly dominates the lists, whoever puts them together.

So how would one define Apple's innovations? It is not a company that focuses on pathbreaking science and spews out new inventions and patents. The 2010 Booz & Co. ranking of companies by their expenditures on research and development places Apple 81st. As a percentage of its revenue, the company spends less than half of what the typical computer and electronics company does and a fifth of what Microsoft spends. Apple's innovations are powerful and profound, but they are often in the realms of design, consumer use and marketing. This is hardly unusual. In fact, the application of technology in service of a consumer need or business objective is what true innovation always has been.

Viewed from a historical perspective, that combination at the heart of successful innovation becomes clear. Len Baker, one of the founding fathers of the Silicon Valley venture-capital industry, says, "My favorite example is Isaac Merritt Singer, who invented the first commercially successful sewing machine. The real benefit to society was that he was the first person to sell to women, because prior to this it was assumed that women

Photograph by Horacio Salinas for TIME

Apple co-founder Steve Jobs with one of his early Macintosh computers in 1984

couldn't operate machinery. His company invented the installment plan and the trade-in. That's innovation. Think of eBay: eBay didn't create new technology. It used technology and revolutionized the way people do things." This idea of innovation as a new business process is of course older than modern capitalism itself. The system of accounting called double-entry bookkeeping, invented in Renaissance Italy, was powerfully connected to the development of trade and commerce. New ideas in all kinds of fields can fuel economic growth.

But while novel business ideas are crucial to innovation, so too is new technology. Eric Schmidt, the executive chairman of Google, argues that "you need both." In Google's case, he explains that the technological breakthrough of a new and better search program came first; only later were ideas about how to make money out of it developed by building a new model for advertising sales.

The ecosystem that encourages technological breakthroughs and their application does not develop in a vacuum. It requires great universities, vibrant companies that devote time and energy to research and—yes—large amounts of government funding. The latter may be a controversial topic in theory, but in practice, the rise of technology was clearly fueled by government. A multitude of technological innovations have been associated with the government, often with the military. Forget the steam engine (developed using cannon designs and technology) and take something as modern as the microchip. After it was invented in 1958 by Texas Instruments, the federal government bought virtually every microchip that firms could produce. The Breakthrough Institute reports in a paper that "NASA bought so many microchips that manufacturers were able to achieve huge improvements in the production process—so much so, in fact, that the price of the Apollo microchip fell from $1,000 per unit to between $20 and $30 per unit in the span of a couple years." And then there is DARPA, the Defense Department's venture-capital arm, which has had an astonishing string of successes, helping fund stealth technology, the beginnings of the global-positioning system and, most famously, the Internet.

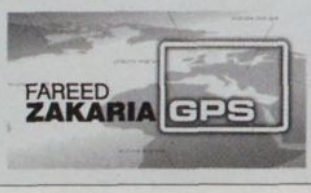
The only durable strength we have—the only one that can withstand these gale winds—is innovation

In the rest of the world, the role of the state is not controversial. While Americans continue to debate whether government should have any role in fostering innovation, the fastest-growing economies are all busy using government policy to establish commanding leads in one industry after another. Google's Schmidt points out that "the fact of the matter is, other countries are putting a lot more money into nurturing new industries than we are, and we are not going to win unless we do something like what they're doing. South Korea is a classic example. Who would have thought that South Korea could become a major iron and steel and shipbuilding country in the world? But some 40 years ago, in their organized way, they decided those are the industries they were going to go after. And there is now increasing evidence that Chinese companies are beginning to do things that are innovative—often with government assistance." There are many who believe that China's government-led innovation won't work, but at least for now, in industries like solar panels, wind turbines and high-speed rail, China is establishing a commanding lead.

Even those who look skeptically on direct support of specific technologies agree that basic research requires government funding. Ultimately, innovation cannot work without both significant government support and a vibrant and dynamic private sector that allows people to experiment, fail and try again. The U.S. remains the best place in the world to do just that, and despite our ideological bias, the U.S. government has actually spent hundreds of billions of dollars funding science, technology and even specific industries. The problem may be less the theory than the practice. Whereas once we funded the development of the computer chip, now we dole out money to agribusiness. Like so much else in Washington, funding for innovation has become less merit-based and more politicized.

Yet even if the U.S. can put together the combination of government policy and private initiative that lets innovation bloom, it won't solve all our current problems. The U.S. is climbing out of a recession in which corporate America is doing well but unemployment remains sky-high. Those with capital are prospering, but the average worker faces powerful challenges.

Will innovation solve this problem? That's not an easy question to answer. Consider Apple, now the second most valuable company in the world by market capitalization, just after ExxonMobil. Its innovative skills have led to rich rewards for its stockholders and managers, but if you compare it with the Taiwan-based firm Foxconn, which actually makes many of Apple's products, a crucial difference emerges. The companies have comparable revenues, but Apple employs about 50,000 people; Foxconn, 1,000,000. And there lies the key lesson. We need innovation urgently. But if we are to get the U.S. back to work, we need perhaps even more urgently to rebuild American education, reform our training system, revive high-end manufacturing, focus on new growth industries and rebuild our infrastructure. In fact, finding new ways to do these old tasks might be the greatest and most important innovation of all. ■



Restoring the American Dream: How to Innovate—A Fareed Zakaria GPS Special
premieres on CNN at 8 p.m. E.T. and P.T. on Sunday, June 5

DIANA WALKER—CONTOUR/GETTY IMAGES

EDUCATION

NOW WHAT?

Mortarboards and diplomas don't get you as far as they used to. These new graduates are in for a bumpy ride

BY ROYA WOLVERSON

Photographs by Joachim Ladefoged for TIME

IN HER MAY 25 "CLASS DAY" SPEECH TO graduating seniors at Harvard, comedian Amy Poehler joked that postcollege life is like "a heist that requires good drivers, an explosives expert, a hot girl who doubles as a master of disguise." The line got some chuckles, but it also struck a nerve. For college grads, nabbing a good job in this economy may seem as far-fetched as pulling off a successful bank robbery.

A recent study from Rutgers University analyzing data from 2006 to 2010 found that more than 30% of recession-era college grads didn't land a job within six months of finishing school. And those who did find one were being paid less. The

Future shock? *Members of the class of 2011 at the University of Rhode Island in Kingston*

'THE PATH WON'T ALWAYS BE LAID OUT NEATLY FOR YOU. SOMETIMES YOU WON'T BE ABLE TO FIND THAT PERFECT JOB. SOMETIMES YOU MIGHT MOMENTARILY TAKE A JOB JUST TO STAY AFLOAT.'

—MICHELLE OBAMA, NORTHERN IOWA UNIVERSITY, MAY 7

scramble for postcollege work has graduates racking their brains for ideas on how to get a good gig.

"They're a much more sober group," says Allen Green, dean of student life at Sarah Lawrence College, where visits to the career-services office are up 35% this year. His college's focus on liberal arts has left many students willing to take anything that pays the bills, and often less than that. Postcollege internships have become the short-term fix, but they require sacrifices from budding adults. A recent poll conducted by consulting firm Twentysomething Inc. found that a startling 85% of graduates are taking shelter under Mom and Dad's roof.

Despite the meager payoffs of their degrees, many graduates think the solution is more education—and more debt. Sixty-two percent of college grads in the Rutgers study believed they needed more education to be successful. Meanwhile, a new study by ManpowerGroup finds that one-third of employers worldwide are struggling to find qualified talent. The idea that there are too many overqualified college graduates and too many underqualified job candidates may seem contradictory. But the mismatch partly has to do with what students are choosing to study, says ManpowerGroup president Jonas Prising. Young college grads with an education or engineering major are more likely to find a job that matches the rigor of their college degree than are grads who majored in the humanities, according to 2009 Labor Department data.

Some employers point the finger at the education system, which fails to get kids interested in what the economy really needs: scientists and engineers. Prising says a large number of college grads simply have the wrong skills. "Liberal-arts skills are in oversupply, and that's an education issue," he says.

But it isn't just the English majors who are having a tough time. "Our students get lulled into thinking job searching will be easy, so they get really discouraged after a few tries," says Maurine Riess, career-services coordinator at the University of Texas at Austin's geosciences school. Reed College's alumni director, Mike Teskey, says the best offer one of his graduating biology majors could find, even after working the alumni network, was a short-term internship in sales that offered stock options instead of pay.

One fix, says Prising, aside from colleges' guiding students earlier toward professions that are in demand, will come from employers who are willing to hire graduates with basic skills and then train them to fit the company's needs before putting them on the job. Prising calls such job candidates a "teachable fit," and it's a concept he says companies will need to get used to. "We're at a point in the cycle where companies look at 9% unemployment and think they must be able to find the perfect match for the job, so they're slow and deliberate about hiring," he says. "Over time that expectation will fade, and companies will have to take a role in making talent more employable." Should that time come, it will sure beat chasing after another $150,000 degree. ■

Harvard University, Cambridge, Mass., May 26

United States Military Academy, West Point, N.Y., May 21

JOACHIM LADEFOGED—VII FOR TIME (6)

University of Rhode Island, Kingston, May 22

Reed College, Portland, Ore., May 23

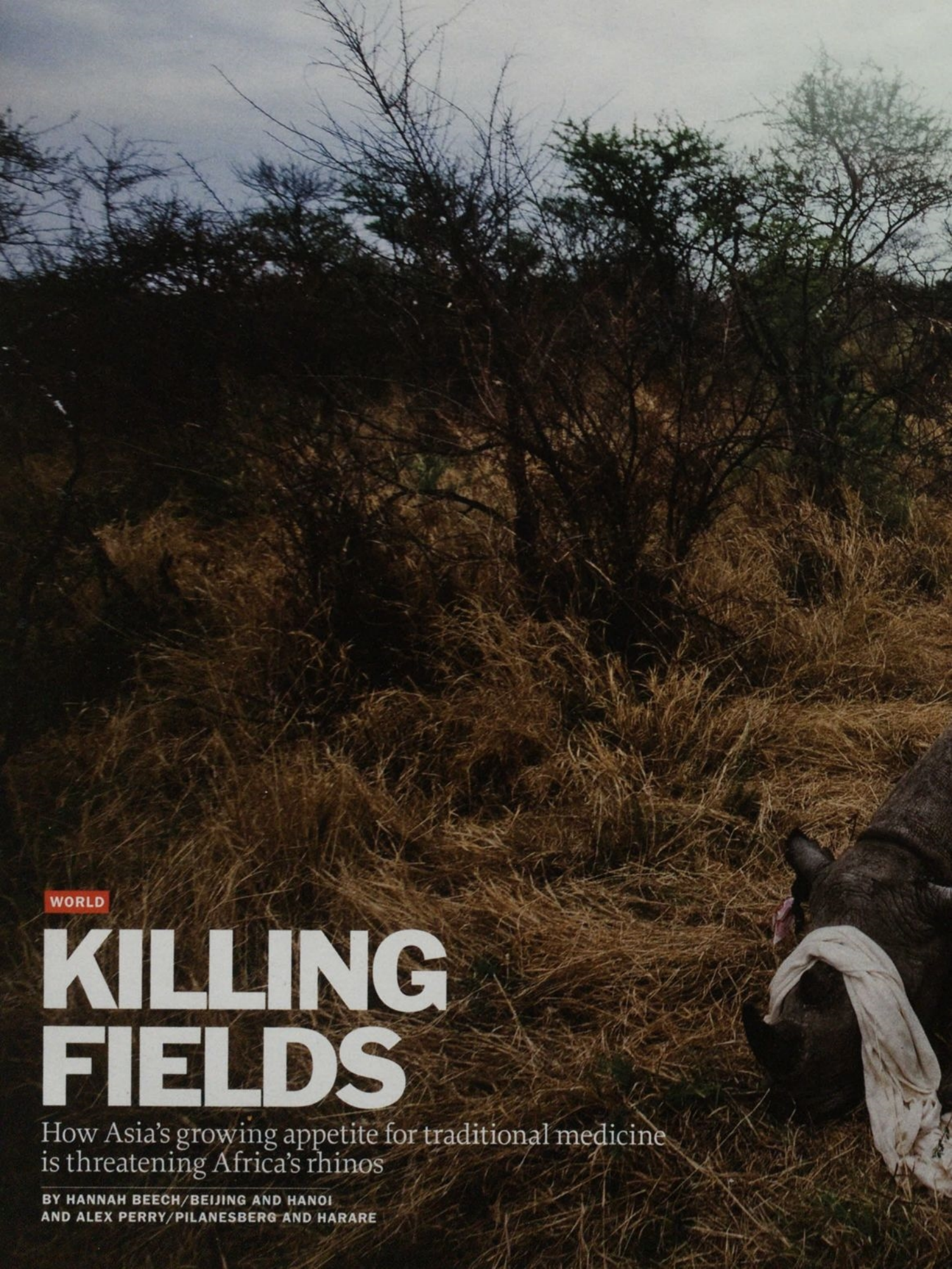
Sarah Lawrence College, Bronxville, N.Y., May 20

California State University, Northridge, May 24

'TODAY I'M GOING TO GIVE YOU ANOTHER ASSIGNMENT. I'M GOING TO ASK YOU TO TAKE ON YET ANOTHER DUTY, AN OBLIGATION FAR MORE COMPLEX AND YET JUST AS IMPORTANT AS SMALL-UNIT LEADERSHIP. I'M GOING TO ASK YOU TO BE A STATESMAN AS WELL AS A SOLDIER.'

—ADMIRAL MIKE MULLEN, CHAIRMAN OF THE JOINT CHIEFS OF STAFF, WEST POINT, MAY 21

JOACHIM LADEFOGED—VII FOR TIME



WORLD

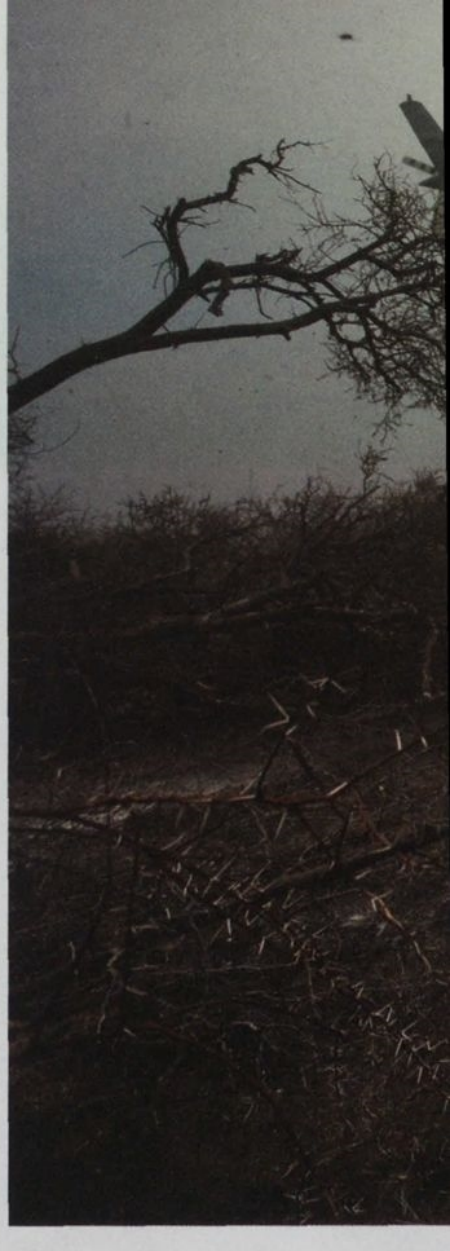
KILLING FIELDS

How Asia's growing appetite for traditional medicine is threatening Africa's rhinos

BY HANNAH BEECH/BEIJING AND HANOI
AND ALEX PERRY/PILANESBERG AND HARARE

Knocked out
A black rhino lies in the South African bush after having a microchip inserted in its horn

Photographs by Dominic Nahr for TIME



NESTLED IN THE GOLDEN BUSH grass of an open savanna, a black rhinoceros lies on her side. Her head is haloed by a dried pool of blood. The animal's horns have been sawed off at the stump. Her eyes have been gouged out. "That's a new thing," notes Rusty Hustler, the manager of South Africa's North West Parks and Tourism Board, whose job includes tracking the escalating number of endangered rhinos poached for their body parts. "The Vietnamese have started keeping the eyes for medicine."

Hustler and an animal pathologist begin the postmortem. The stench and the proliferation of flies and maggots indicate that the beast, which was found at the Shingalana private game reserve by a local guide, has been dead at least a week. Eight bullet cartridges are scattered near the carcass. Wearing white boots and blue latex gloves, the pair get to work, sharpening a series of butcher's knives, then ripping into the rhino. A metal detector is passed over the exposed flesh. After an hour, the metal detector squeaks, then emits a louder shriek. The pathologist reaches the heart. "That's the kill shot," says Hustler, slicing the heart to uncover an inch-long slug.

The South Africans rest and survey their grisly work. In 1993 international trade in rhino horn was banned by the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), which now includes 175 member countries and regions. But somewhere, almost assuredly on an illicit route to Asia, the horns and eyes of a 9-year-old female *Diceros bicornis* are traveling, destined for often desperate people who believe in the mystical curative powers of the rhinoceros.

Unlike the elephant, its pachyderm cousin, the rhinoceros possesses little of the majesty needed to evoke worldwide sympathy. It is shy, low-slung, seriously nearsighted. It does not dazzle with its intelligence. Yet for millennia, these bulky lawn mowers have entranced humans with the agglutinated hair that makes up their horns. Ancient Arabs carved dagger handles from it; Yemen was a popular destination for the animal's parts through the 1980s. Western colonialists in Asia and Africa lined their parlors with rhino-horn trophies and sometimes fashioned ashtrays out of the beasts' feet. Most of all, though, rhino horn was prized in Asia for its purported medicinal value. Ancient traditional Chinese medicine texts recommended the powdered horn for ailments like fever and arthritis, and modern-day practitioners have prescribed it for high blood pressure and even cancer. (Common lore notwithstanding, rhino horn is not considered an aphrodisiac.) So treasured was rhino horn that some of China's tributary states in Indochina were sometimes known in imperial shorthand as the lands of the rhino.

Not long ago, the Asian passion for rhino horn was, in the grand scheme of things, manageable. But now that newly moneyed nations like China and Vietnam are part of trade networks that girdle the earth and move products at jet speed, the fate of the rhinoceros hangs in the balance. This is the story of an animal under threat.

Close to the Tipping Point

THERE ARE FIVE SPECIES OF RHINOCEROS in the world: two in Africa and three in Asia. Two of the three Asian populations—the Sumatran and Javan varieties—are on the brink of extinction. The story in southern Africa is more heartening. Back in the 1960s, the African black rhino numbered about 100,000, but its population waned to just 2,400 in the early 1990s. Today its numbers have doubled to about 4,800—still low, but heading in the right direction. The real conservation success story has been the dramatic rebound of the African white rhino. A century ago, there were as few as 50 of the beasts alive. Now, because of field-conservation efforts, relocation of animals to safer regions and expanded wildlife refuges, the population has reached around 20,000.

But over the past few years, the news from Africa has turned dire. Poaching, once restrained, has skyrocketed. From 2000 to 2007, only about a dozen rhinos were poached each year in South Africa, where nearly 90% of all rhinos live, according to the WWF. But last year, 333 were illegally slaughtered there, nearly all found with their horns chopped off. "Poaching is like a bush fire," says Raoul du Toit, a Zimbabwean environmentalist who won the prestigious Goldman Prize this year for his efforts to nurture critically endangered black-rhino populations. "It starts small, but it spreads and turns into a conflagration very rapidly." Although the current poaching levels are not high enough to suppress the natural population growth of rhinos in southern Africa, they are edging ever closer to the tipping point. "We look on this as an emergency," says Josef Okori, the manager of the African Rhino Program for the WWF. "We are waging a protracted war."

And it is a real fight. Today's illicit rhino-horn trade isn't just small-time

DOMINIC NAHR—MAGNUM FOR TIME

Poaching prevention *Tracing poached horn is a way of fighting the gangs that distribute it. Here South African game park employees put a microchip in a black rhino*

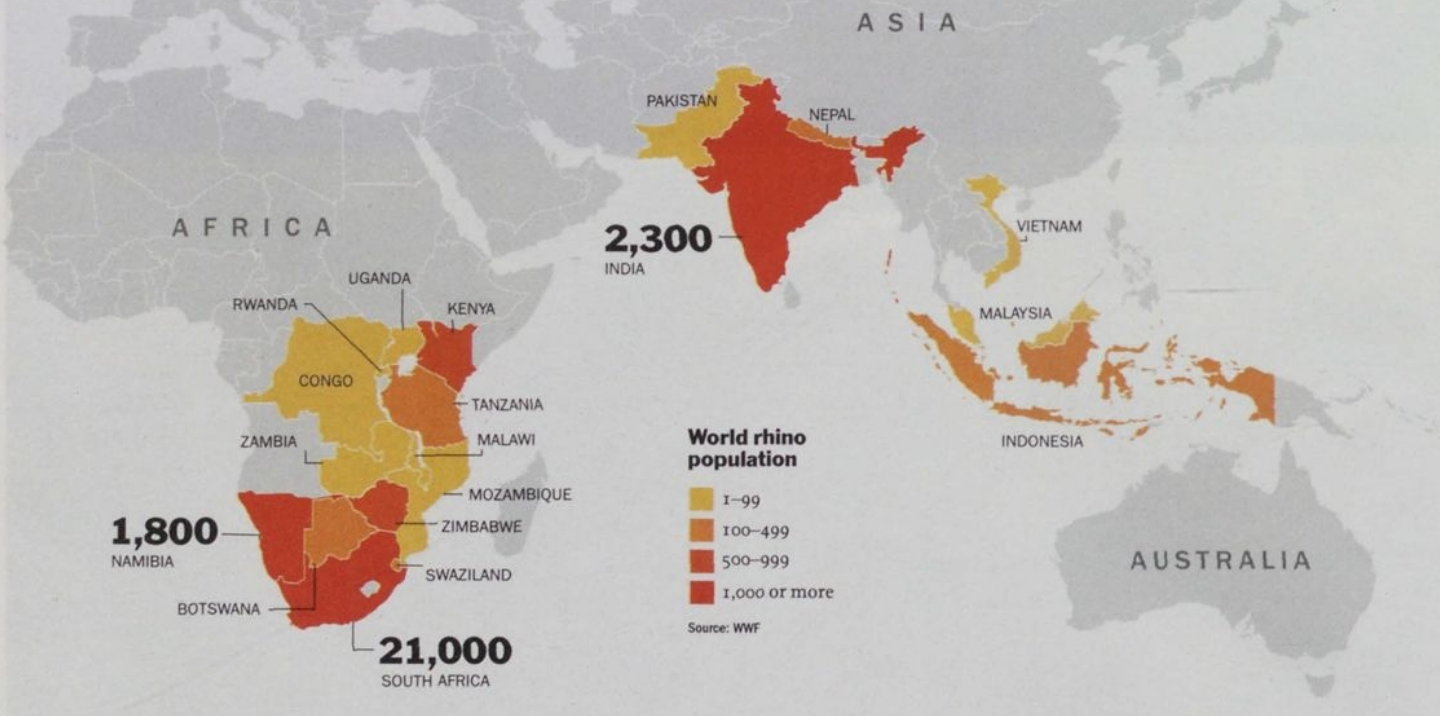
poachers picking off a stray beast or two. Instead, law-enforcement officials say, global criminal syndicates are orchestrating the lucrative business. By weight, rhino horn can be worth more than gold, fetching tens of thousands of dollars a kilogram in China or Vietnam, by far the two biggest markets for the illegal material, according to environmental watchdog groups. And because individual horns are compact, they can be transported easily.

The value of rhino horn explains why poachers often use expensive equipment like light aircraft, helicopters, tranquilizer guns and night-vision goggles to pursue their quarry—overwhelming conservation efforts by underfunded national wildlife commissions. African game ranchers, safari guides and wildlife officials—precisely those who should be protecting the beasts—have been caught dabbling in the trade. At the same time, Asian criminals posing as big-game hunters are spending tens of thousands of dollars on licenses that allow them to legally shoot rhinos in South Africa, adding a respectable veneer to a nasty pursuit. A continent away, Chinese business interests are investing lavishly in a shadowy rhino-farming scheme that threatens to contravene international law. Taken together, these elements amount to "the most sophisticated organized crime that the convention has had to face in its history," says John Sellar, head of the enforcement office for the CITES secretariat.

Sellar believes that wildlife crime is linked to a host of other criminal-syndicate pursuits. When Interpol organized a two-day operation to nab ivory and rhino-horn smugglers across six countries in southern Africa last year, only a handful of rhinoceros horns were recovered. But the effort resulted in 41 arrests and netted illegal immigrants, illicitly procured gold, banned firearms and even an unlicensed ivory-processing factory. "It can be very difficult to prove a conspiracy that reaches from Vietnam to South Africa and in between," says Sellar. "But some of the money that was being paid to exploit the legal hunting in South Africa, there's no way that the individuals were getting their return on that, which indicates that this is simply organized crime laundering their money."

True breakthroughs in the fight against rhino-horn smuggling won't happen unless police in countries like China and Vietnam, plus transit countries like Thailand and Malaysia, cooperate fully by following the illegal trail to the big criminal bosses. "We have significant resources, but we're directing them toward the easier

WHERE THE RHINOS ARE



options, like poachers and people connected with seizures," says Justin Gosling, Interpol's environmental-crime liaison officer for Asia and the South Pacific, at an environmental-crime convention in Lyon, France. "If we could just target and prosecute a handful of significant individuals, we could make a massive dent in these crimes."

For now, the poachers and their overlords have the upper hand. In 2001 police recovered two-thirds of poached rhino horns, according to data gathered by the International Union for Conservation of Nature, an environmental NGO. By 2009 the number was less than 8%. True, about a dozen poachers have been killed in shoot-outs in South Africa and one in Nepal this year, and more than 80 arrests have been made in connection with the illegal rhino trade. In 2010, prison sentences were meted out in Zimbabwe, South Africa, China and the U.S. But complicit officials are common, say law-enforcement experts. A member of one of Zimbabwe's crack commando units was in charge of one poaching gang, helping policemen smuggle horns and tusks out of national parks, says Sellar. Those who are genuinely trying to stop the trade are outmanned and outgunned. Many wildlife law-enforcement agencies don't even have arrest powers. "We are out there, guns blazing," says David Mbunda, head of South African National Parks. "It may not be tomorrow, but eventually we want to bring this scourge to a complete stop." In the meantime, the rhinoceros killings continue. In the first quarter of this year, 138 South African rhinos were poached, putting 2011 on pace to far exceed last year in kills. Rhino horn remains easily available in Asia, whether from online vendors or traditional-medicine shops. "This is not a crisis just for South Africa," says Lieut. Colonel Lineo Grace Motsepe, the commander of the endangered-species desk of the South African police service. "It's a crisis for the whole world."

A Rumored Cure for Cancer

THE TRADITIONAL-MEDICINE STORE ON Hanoi's Lan Ong Street smells ancient and enigmatic, its glass jars and wooden drawers filled with sea horses, deer antlers and a forest's worth of shriveled fungi. The friendly pharmacist listens to a story about a grandfather with cancer and nods. "We can get it for you," she says, dispatching her husband down the street. A few minutes later, he returns and unwraps a paper-covered package. A chunk of rhino horn tumbles out, its amber striations gleaming in the afternoon light. More than 6,200 miles (10,000 km) from southern Africa, the horn still smells of savanna. The price: $3,500 for 100 grams.

Vietnam has become a key market for rhino horn. A few years ago, intriguing rumors began circulating that someone very high up in the country's communist leadership was believed to have been cured of cancer by taking rhino-horn powder. Cancer had not been linked to rhino horn in Asian traditional-medicine tomes. The rumor of a cancer cure, however, tantalized the Vietnamese, particularly those who have accumulated wealth from the country's economic reforms.

When alarmed South African wildlife officials visited Hanoi last October to discuss Vietnam's role in the rhino-horn trade, they were told that the country was mainly a transit route for voracious Chinese consumers. (This was better than the outcome of a previous trip, when a high-ranking Vietnamese Forestry Ministry official walked out of a meeting with international wildlife monitors.) But Vietnam is clearly an end destination for

Traditional medicine
In Vietnam a woman displays a piece of illegally purchased African rhino horn, top. A specially designed bowl for grinding the horn, thought to be a powerful medicine, above

JUSTIN MOTT FOR TIME (2)

animal parts, not merely a way station. Even as the South Africans were meeting with their Vietnamese counterparts, Hanoi abounded with rhino-horn paraphernalia not openly available in other countries. "Vietnam has stopped some people trying to smuggle in rhino horn at various border checkpoints, but otherwise I've seen nothing indicating a crackdown on the trade," says Tom Milliken, East/Southern Africa director for the wildlife-trade-monitoring network Traffic. "In all my years of monitoring rhino horn, I've never seen entire local industries catering to the consumption of horn like I have seen in Vietnam."

No kidding. In a factory on the outskirts of Hanoi, the Thien Duc company churns out unusual wares: machines used to hold and pulverize chunks of rhino horn by rubbing them against dishes with rough interiors. The electronic grinders and ceramic bowls are sold at a downtown badminton shop. The store's owner, Thanh (he wouldn't give his full name), sells a machine or two every week along with around 10 of the specialized dishes. His customers, he says, are often communist bureaucrats who aren't sick but need something to revive them after long nights at state-funded banquets. "It's a good gift to give government officials," he tells TIME. "It's really fashionable now." Sure enough, a car with official plates pulls up in front of the store.

That the Vietnamese agreed to meet the South African delegation last year signals that they acknowledge the problem. Nevertheless, more Vietnamese have been caught in South Africa trying to take rhino horn out of the country than have been detained back home. Just before the soccer World Cup last year, three Vietnamese were arrested at the Johannesburg airport with 24 pieces of rhino horn. Even more alarming, the Vietnamese government has been implicated in the illicit trade. An economic attaché from the Vietnamese embassy in Pretoria was twice nabbed with rhino horn but invoked diplomatic immunity. In 2008 a South African investigative TV show secretly filmed another Vietnamese diplomat buying rhino horn on the steps of the embassy, then casually walking back inside. She was recalled home.

Vietnamese in South Africa have also abused a loophole in restrictions on the rhino trade. Under CITES regulations, a limited number of rhino hunts are allowed each year, mostly at private game ranches. Some of the money raised by these licensed hunts is meant to fund conservation efforts, but the horns themselves are not supposed to be used for medicine. If they apply for another permit, hunters are allowed to take home trophy horns that have microchips inserted in them for tracking. But in reality, there is little oversight of the trade, leading criminals to pose as big-game hunters for access to horn.

In 2003, for the first time ever, CITES permits were issued to purported Vietnamese hunters, who legally exported nine trophies. In the first nine months of 2010, the number of Vietnamese trophy-permit applications had reached 107—this from a country with little tradition of sport hunting. (Over the past few years, there has also been a sharp rise in Chinese rhino-trophy applications.) Some of the so-called hunters from Vietnam were so inexperienced, they had to be taught how to shoot a gun, according to South African court testimony. Others, say police, simply had their local guides dispatch the rhinos for them, which is illegal. So far, a handful of Vietnamese have been arrested in South Africa for taking advantage of trophy hunts. But earlier this year, a South African hunter who killed a rhino for a Vietnamese client was fined a mere $4,300.

By 2008, suspicious South African officials began limiting each hunter to just one rhino kill per year. Rhino poaching increased almost immediately, as did the number of Vietnamese applying for trophy-hunting permits. Vietnamese keep getting arrested trying to smuggle horns out of South Africa. In January a Vietnamese man and woman were detained at the Pretoria airport trying to sneak out four unlicensed horns from animals they shot during a trophy hunt just days earlier.

Asian criminals can't succeed without the help of private game ranchers. In September, a South African court will try a landmark case against two private-game-park operators, two veterinarians, a professional hunter and six others, who are accused of running a rhino-horn syndicate that bought surplus animals from the South African wildlife service and then secretly slaughtered them for their horns.

Is all the cost and risk of these criminal activities worth it? Does rhino horn actually work against disease? Studies by pharmaceutical company Hoffmann–La Roche and the Zoological Society of London have reported no medicinal value in rhino horn, which, like fingernails, is composed of agglutinated hair and contains proteins like keratin. But many Asians believe thousands of years of traditional medicine lore cannot be wrong. In China, where rhino horn is banned for use in traditional medicine, Zhou Lei of the Chinese Society of Traditional Chinese Medicine says he supports the government policy but adds, "Personally I think it's wasteful to not make use of such precious materials if they come from rhinos that died naturally."

Hanoi resident Nga Do (who does not want her full name used) is suffering from cancer. Doctors recommended rhino horn, so she bought a chunk for $2,000. The source? A friend who accompanied Vietnamese government officials to South Africa. A man who works as head of security for a government institute in Hanoi says he spent $5,000 for a rhino-horn treatment for his liver disease, receiving his cache from someone who worked for a Vietnamese embassy in southern Africa. "If you want it, you can get it easily," says the man, who claims the smoky-tasting liquid produced by mixing rhino-horn powder with water is rejuvenating. Javan rhinos used to be plentiful in Vietnam,

but both of these patients had to reach across the world for their remedies. A year ago, what may have been Vietnam's last rhino was killed in a national park. Its horn was hacked off its face.

Breeding Rhinos for Horn

IN HIS DUSTY LIVING ROOM PILED HIGH with scientific journals and outdated computers, Jia Qian slurps down a bowl of noodles before leaving for the Beijing airport. The retired head of the National Traditional Chinese Medicine Strategy Research Project is off to yet another conference in southern China as part of his unorthodox campaign to relegalize rhino horn for use in traditional Chinese medicine. Back in 1993, because of its CITES obligation, China banned rhino horn for medicinal purposes; as recently as last year, the country's official traditional-medicine authority publicly refuted the horn's curative powers. But Jia, 70, believes rhino horn can help cure everything from fevers and brain hemorrhages to SARS and AIDS. "The reason the Chinese government hasn't used rhino horn for these diseases is because some people were Western trained and tainted by Western thought," says Jia. "Other people were weak and gave in to foreign pressure."

Not everyone in China has been infected by Western dogma. From 2006 to 2009, China imported 121 rhinos from South Africa, according to South African data. During that time, China was the only country to purchase more than a handful of the animals for zoological or breeding purposes. Why, exactly? In March 2010, at a CITES meeting in Qatar, Chinese delegate Liu Xiaoping stood up to quash any rumors. China had absolutely no plans to dehorn South African rhinos and deviate from the terms of its import licenses or rescind its ban on using the animal's body parts, Liu said indignantly, according to the testimony of other participants. (Speaking to TIME, Liu now denies having said in Qatar that China had no intention of farming rhinos for their horn and refuses to speak further on the subject.) But shortly after Liu's speech in Qatar, a Chinese research paper surfaced, titled "Proposal for Protection of the Rhinoceros and the Sustainable Use of Rhinoceros Horn." The article, originally published in 2008, referred to a rhino project on China's southern Hainan Island, where "initial progress achieved in research to extract rhinoceros horn from live rhinoceroses merits the attention and support of relevant institutions." The co-author of the report? Senior traditional-medicine researcher Jia, who TIME has learned is part of a secretive, multimillion-dollar Chinese effort to cultivate rhinos for their horn.

Back in 2006, local media in Sanya, Hainan's sun-and-surf town, trumpeted a future tourism hot spot: a safari park called Africa View packed with 50 types of animals, including lions, antelopes and, most of all, rhinoceroses. Two years later, a local newspaper photographer visited. No animals were in evidence, save 60 or so rhinos living in rows of concrete pens, which he photographed. Africa View still has not opened; locals say construction in the park has ceased. An official surnamed Li at the Sanya Tourism Commission, who once toured the park and saw rhinos there, says he has no idea why Africa View hasn't opened yet. "I don't know who the investors are," he told TIME.

The park's parent company, TIME has learned, is called the Hawk Group. Based in Manchuria, in China's northeast, the company oversees an eclectic business portfolio. It is mainly an arms manufacturer. But the company—which is headed by Zhang Juyan, a member of China's National People's Congress—also dabbles in traditional Chinese medicine through a subsidiary called Longhui. That arm oversees a zoo in the eastern Chinese city of Hangzhou as well as Hainan's Africa View park.

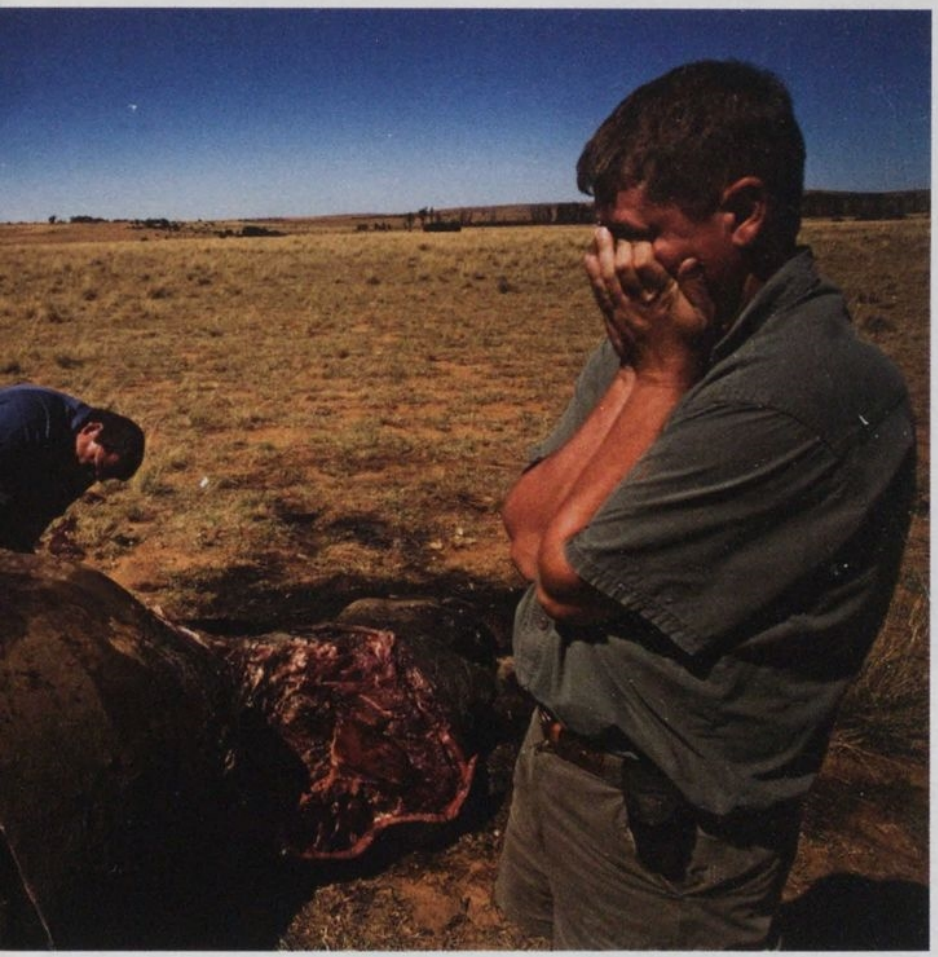
Though Africa View was sold as a tourism destination to Hainan media, Longhui's website makes the firm's true ambitions clear: "To provide our pharmaceutical raw materials, the company has built an endangered animals breeding station in Sanya, Hainan province. The company has imported a large number of endangered animals, laying a solid foundation for its long-term development." An online business plan states that Longhui aims to produce various rhino-horn products, including 500,000 "rhino horn detox pills," and projects annual sales revenue of $60 million.

Representatives of Hawk, Longhui and the State Forestry Administration all refused to talk to TIME about the Sanya project. Permission for TIME to visit was not given, supposedly because the park is "under renovation." However, Wang Yujia, a media-department representative at the Hangzhou Wild Animal World, which helped facilitate the import of South African rhinos to Hainan,

spoke openly. "Rhinos are very precious animals, and their horns are most valuable as medicine," she said, confirming that the project's focus has not been tourism. "Our group runs a pharmaceutical company that makes those drugs. It's all part of the same system."

The Sanya facility does not appear to be Longhui's only rhino-horn farm. Last year, at least 16 white rhinos from South Africa were imported to Yunnan province in southwest China, according to provincial statistics. A February announcement from the Yunnan Entry-Exit Inspection and Quarantine Bureau declared that Hawk Group head Zhang "has an ambition: to establish the largest rhinoceros industrial base in China. He is planning to import at least 40 rhinos this year and hopes to expand [the Yunnan] population to 200 within five years."

In June 2010, China's patent office published a curious patent application. Zhang claimed to have co-invented something called a "self-suction living rhinoceros



Slaughtered *Investigators dig for bullets inside a poached rhino as the manager of a South African game reserve covers his face in disgust*

DOMINIC NAHR—MAGNUM FOR TIME

horn-scraping tool." The online business plan, which appeared on a district government website, states that Longhui's "live rhino-horn grinding technology research has been approved by the State Forestry Administration." But under current CITES regulations by which China is bound, trading in rhino horn for medicinal purposes—whether from live or dead animals—remains illegal.

Harvesting horn from live rhinoceroses is largely unknown territory, although biologists estimate that a rhino's horn naturally grows around 3.9 in. (10 cm) a year. (Like fingernails or hair, rhino horn regenerates.) In many parts of the world, confining wild animals for their body parts is taboo. But China has a history of harvesting bones from caged tigers and bile from moon bears, all for purported medicinal benefit. Jia, the scientist who has been involved in setting up both of Hawk's rhino farms, says his research shows that one live rhino can supply 1 kg of powdered horn annually. "Farming rhinos in China for their horns will definitely be allowed eventually," he says. "It's just a question of when."

Jia contends that rhino farming will help protect wild animals that might otherwise be poached. The live horn-grinding technique, he says, ensures that the farmed specimens aren't killed. Some prominent African wildlife experts also advocate rhino farming as the only practical way to cut down on illegal hunting. Hawk Group, which Jia says spent 1 million yuan ($154,000) to import each animal, presumably hopes to corner this lucrative market in China. But while countries like Japan put aside some of the profits made from legal animal-part sales for conservation, China does not have such a scheme. In fact, it hasn't even publicly admitted to any plans to farm rhinos for their horns.

Conservationists also point out that endangered-animal economics are complicated. What will happen if demand in China—and elsewhere in Asia—is rekindled by the availability of legal rhino horn and the farmed material can't meet the rush of orders? In 2008 a legal auction of 119 tons of ivory didn't halt elephant poaching in Africa; in fact, some believe the influx of tusks catalyzed further slaughter of elephants as more people developed a taste for ivory. "The natural world is scarred with the unintended consequences of good business plans," says Traffic's Milliken. "The scale of the Chinese market is potentially so awesome, one miscalculation and we potentially could lose entire species."

Blood in the Bush

JOHN BASSI BANKS HIS BELL JET RANGER UP the side of a mountain, turns and sweeps back into the valley below, skimming the acacia trees that are a favorite rhino snack. Behind him, Charlotte Moueix leans out the helicopter door, gun ready. Below them is Pilanesberg National Park, in South Africa's northwest. A mother black rhino and her baby trot past. As the chopper hovers above, the calf, perhaps a year old, swirls around, plants its feet on the ground and snorts, ready to charge the strange flying beast above. Moueix fires. The baby takes off but begins to totter and stumble, burying his nose—and tiny horns—in a thornbush.

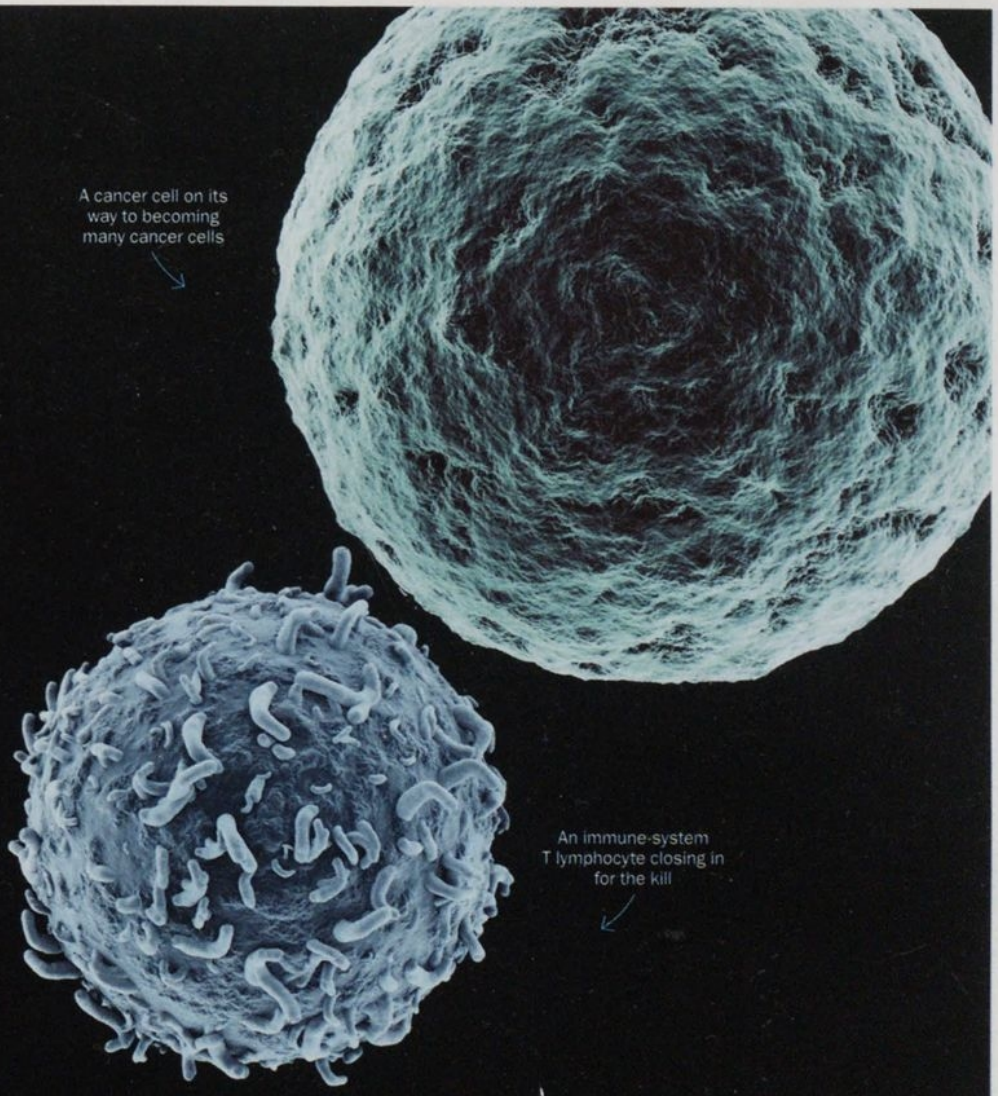
Bassi touches down some 50 yards (45.7 m) away. Moueix jogs toward the animal and extracts the dart. Then another colleague takes a hand drill and bores holes in the baby rhino's horns. Microchips with identifying codes are inserted so that if the animal is poached, its horns can be traced. Soon Moueix injects the calf with a reviving agent, and in three minutes the animal is trotting away, a bit dazed but unharmed. The team will dart and microchip three more calves that day. They work from dawn until dusk. "I can't remember what happened two days ago," says Bassi, his eyes bloodshot. "I'm so tired. And I'm so sick of finding dead rhinos. I'm sick of the smell of them." Until last year, Pilanesberg park had never lost a rhino. But a dozen were poached in 2010. In the wild, the stench of death is never far away. But with humans slaughtering rhinos for their horn, even more blood will run in the African bush. —WITH REPORTING BY JEFFREY T. IVERSON/LYON AND JESSIE JIANG/BEIJING ■

"Fifty million patients neglected each year. Finally, someone's searching for a cure."

– **Haley Wong, dengue fever patient**

Haley Wong, like millions of others in the developing world, was ravaged by dengue fever, a debilitating disease marked by severe bone pain and high fever that can lead to hemorrhaging and death. Diseases such as dengue fever are not often a research priority because they are confined to developing regions. In 2002, Novartis established a non-profit research center in Singapore dedicated to neglected diseases including dengue fever, and they're getting closer to a cure. To learn more, visit **ThinkWhatsPossible.com**

NOVARTIS

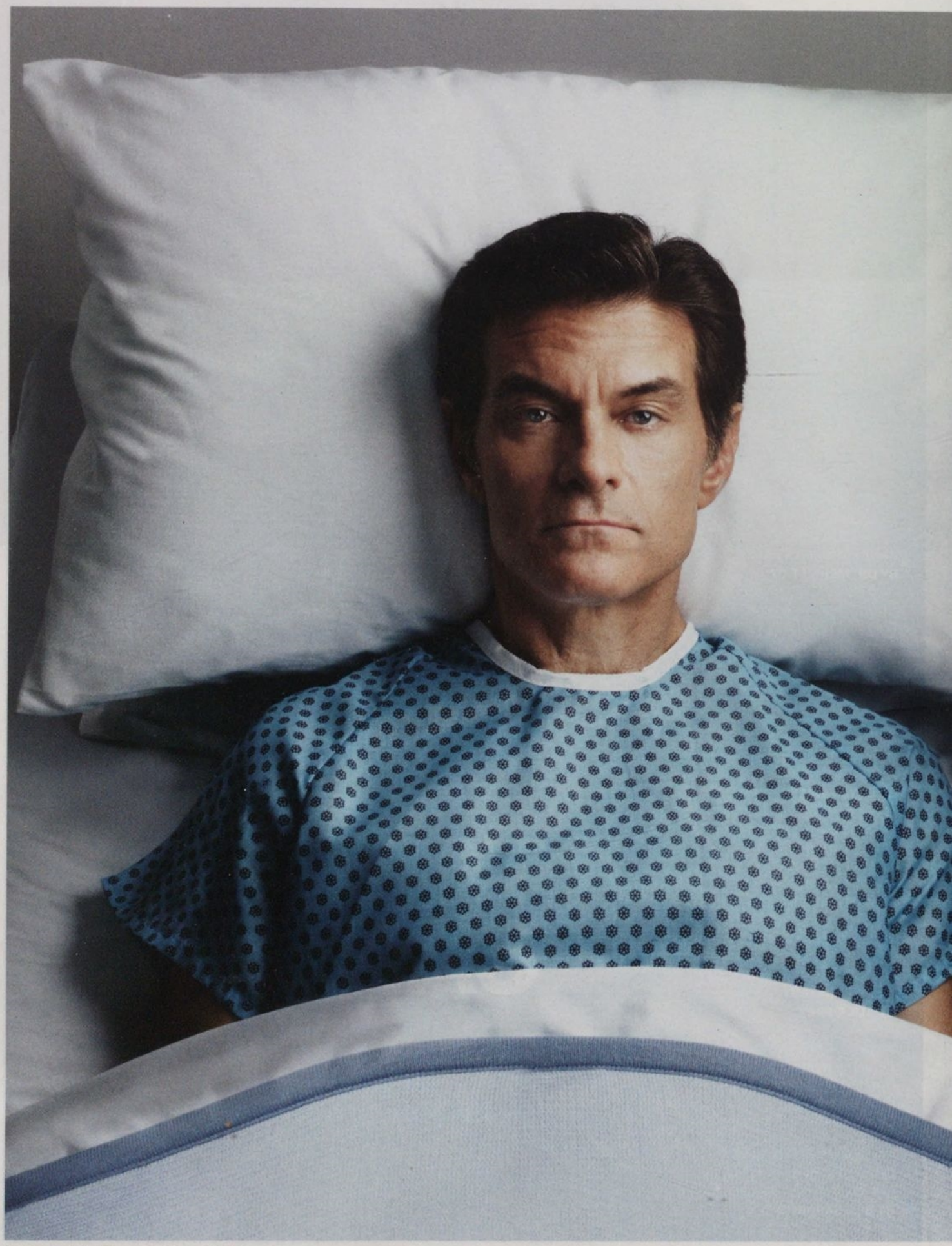


HEALTH SPECIAL

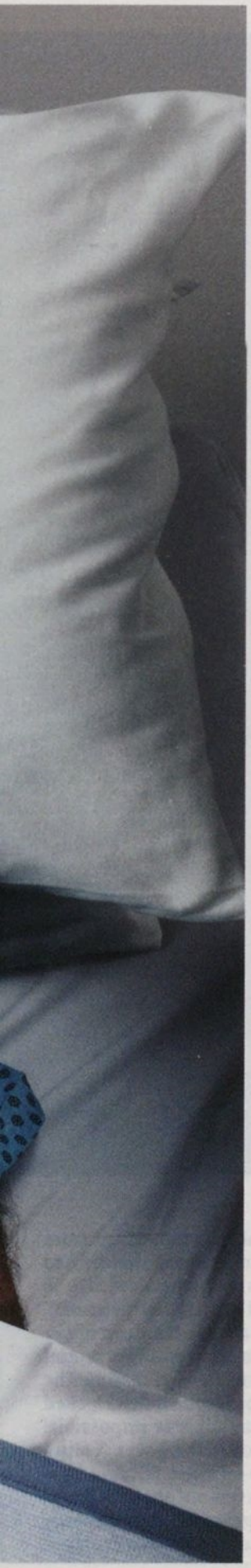
TARGET: CANCER

How we find it. How we treat it. And how we may finally be able to outsmart it

CONEYL JAY—GETTY IMAGES



Photograph by Marco Grob for TIME



PROP STYLING BY JONATHAN ELDER

I'm a famous doctor. I give advice to millions of people. But it turns out I'm a lousy patient.

What I learned from my cancer scare

BY DR. MEHMET OZ

AT SOME LEVEL, I KNEW I WAS STANDING IN the middle of New York City traffic, but my mind was in another dimension entirely. Reminders of your mortality will do that.

The day hadn't started off so strangely and scarily, but it hadn't started off to be much fun either. I was going to my doctor's office for a colonoscopy, my second in nine months. Colonoscopies aren't supposed to happen nine months apart, of course, unless the first one turns up something worrisome—and mine had. Back in August, my doctor discovered a suspicious polyp that needed to be removed. It turned out to be precancerous, and while a large majority of such growths do not eventually become cancer, colon cancer usually starts with just that sort of polyp. So did I have the 40-some years left to me that I had been more or less counting on—or just a year or two? You ask a lot of existential questions like that when you get the kind of news I had gotten. And you do a lot of hoping that when you return for a follow-up exam, all will be well—and the problem will simply go away.

Now I was going in for that follow-up. Surely I would get the all clear, and life would go back to being

what it had been. I didn't, and it didn't. My doctor found another polyp, higher up in the colon—a more dangerous location.

I left the doctor's office and stood out on the street wrestling with the news. Pedestrians bustled by—all of them, I felt, untroubled by the kinds of things I was feeling. But of course, I wasn't alone. Indeed, I had something in common with millions of people across the U.S. I was a medical statistic, one of many, many patients who receive the kind of diagnosis I did every day of every year. The very fact that I was joining so large a population meant that this was by definition a routine story. But that's the case only if the story isn't about you.

When it is about you, your mind races. Am I at fault? Could I have done something differently? What do I tell my children and wife? What if I actually get cancer? Have I done everything I set out to do in life? I am a physician who gives advice for a living. I have spent much of my professional life extolling the value of healthy eating and regular exercise, and I practice both. So how in the world did this happen to me?

Part of the answer to that last question is luck of the draw. A healthy lifestyle can dramatically lower your risk of cancer, but it's no guarantee of anything. But there was more at work too—at least in terms of how and when I learned of my condition. I take pride in being a good doctor and a good family man, but the fact is, I had been a pretty bad patient. Living my life on television, dispensing medical advice every day leaves me with a solemn obligation and moral imperative to be honest and to own up to mistakes—and I made some. They may not have been big, but they were more than enough to threaten my health, my future and the well-being of my family. The experience transformed me from Dr. Oz to just plain Mr. Oz, and it taught me a lot, both about myself and about my patients.

50 and Fabulous?

THE STORY STARTED ABOUT A YEAR AGO, when I celebrated my 50th birthday with a big bash attended by family and friends, many of them doctors. I bragged that I would commemorate my half-century mark by scheduling a colonoscopy, something I routinely counsel my patients and viewers to do—and something that I didn't look forward to with any more enthusiasm than anyone else does. Making light of it by making an announcement of it helped ease the reality that I had crossed midlife's threshold and somewhere out there a colonoscope was waiting for me.

All these years I have been telling people bad news, sad news, scary news. Now I was experiencing what they so often experience

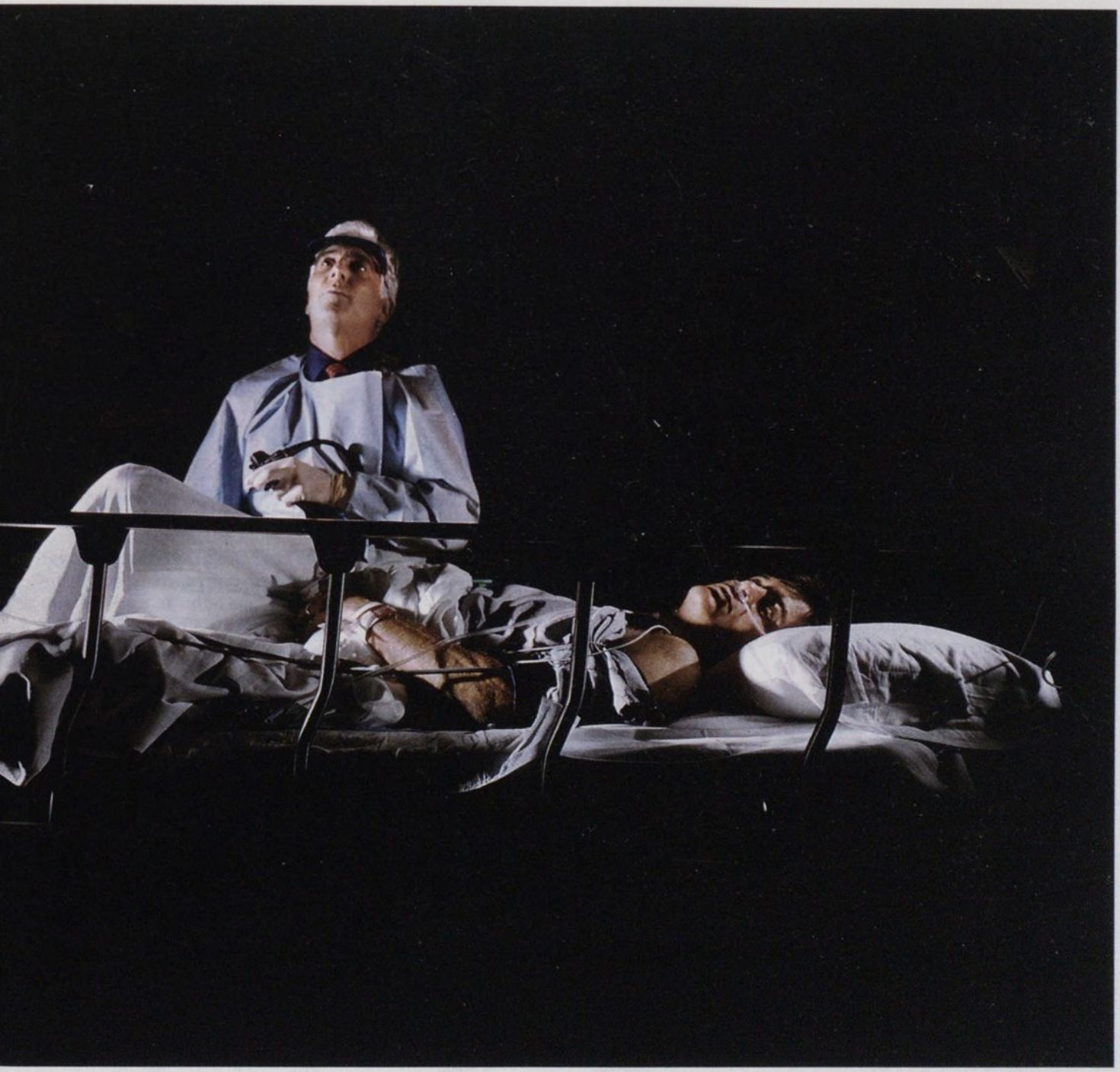
Some guests suggested that the procedure be shown on my program, pointing out that viewers would be well served to see how easy this simple screening could be. I agreed, figuring that if I had to go through the prep and hassle, why not put it to good use? The gravity of the test was the last thing on my mind. Indeed, if I wanted to be truly honest with myself, I might not have scheduled it had I not been such a show-off at my birthday party.

But even though I did manage to make the appointment despite my belief that I had nothing at all to fear, I found a different way to act against my own interest beforehand. I knew full well that I wasn't supposed to eat for at least 36 hours leading up to the test, but I nonetheless sneaked a few mouthfuls of lunch just 18 hours before. How could it hurt, especially for someone as healthy as me? I said nothing to my doctor about this and reported for my test the next day.

During a colonoscopy, many people are completely unconscious. Another option is twilight sleep, which eliminates pain while leaving the patient partly conscious. I chose that, and I also opted to watch on the monitor as Dr. Jon LaPook, my gastroenterologist and friend, conducted the test. It didn't take long before he began grumbling about the inadequacy of my prep. My colon was littered with the lentils I had heedlessly eaten the day before. I had been a mediocre patient, the kind I lecture about—and to—in my practice and public life. As I lay on the gurney, a snapshot of thousands of conversations I had had in my office with patients on whom I was about to operate formed vividly in my mind. My emphasis in those situations is always pointed: I look them in the eye and tell them I need their help, that this is a combined effort and that we will get through this together but that we both have responsibilities. I always feel frustrated when my patients seem to think that precise medical instructions based on years of experience don't apply to them. I was now that person.

LaPook scolded me for having disobeyed instructions, but he did so playfully; I was in a vulnerable enough position at that moment as it was. The banter ended

fast, however, when he looked up from the monitor and announced that he had found a suspicious polyp that needed to be removed. I shifted my gaze to the screen, and there it was: a little teardrop of tissue attached to the colon wall. For a brief period, emotion superseded reason. The growth coming into focus indeed looked precancerous, but that was impossible! I have lived a pious life! I was feeling fear, yes, but also—irrationally—anger. LaPook coolly carved out the polyp and forwarded the specimen to pathology for rapid diagnosis. But it was a Friday—



Moment of truth *After one worrisome colonoscopy, Dr. Oz has a follow-up, conducted by Dr. Jon LaPook. High-risk patients must get used to the procedure*

a Friday the 13th, as it happened—and there would be no results until Monday.

The Long Wait

THE WEEKEND WAS WHAT YOU WOULD imagine the weekend to have been—which is to say, lousy. All these years I have been telling people bad news, sad news, scary news. Now I was experiencing what they so often experienced. The very lonely terrain of awaiting diagnosis is bad enough. But as every parent or professional or employee knows, your responsibilities at home or at work don't stop just because your mind is whirling with worry. The same is true when you're a healer—when your pager continues to go off and the messages continue to come in and your patients expect, and deserve, your full attention. In the free moments I had that weekend, I went through my litany of medical options. Best-case scenario would be a hyperplastic polyp, which behaves like a skin tag and would never have hurt me. Worst case, I had cancer that had spread through the protective lining of the colon, and I would need surgery to remove my colon.

Monday morning at last arrived, and LaPook called and asked if I could come to his office. I immediately knew I could eliminate the best-case scenario. Doctors are taught to share good diagnoses over the phone but to deliver bad news in person, so as to offer better counsel. I sat attentively across from him as he told me

Photograph by Max Aguilera-Hellweg for TIME

that yes, my polyp was premalignant, the kind from which cancer arises to afflict 5% of Americans. The odds are higher if you have a relative with this cancer, if you are obese or if you smoke. I had none of these risk factors, nor do the majority of men and women diagnosed with an adenomatous polyp. This bears repeating, in case any of you believe you are even healthier than I thought I was. Most people with precancerous polyps have no risk factors. If I had not been showing off at my birthday party, I could have easily caught my problem too late and been facing major surgery and perhaps a colostomy, chemotherapy and even death.

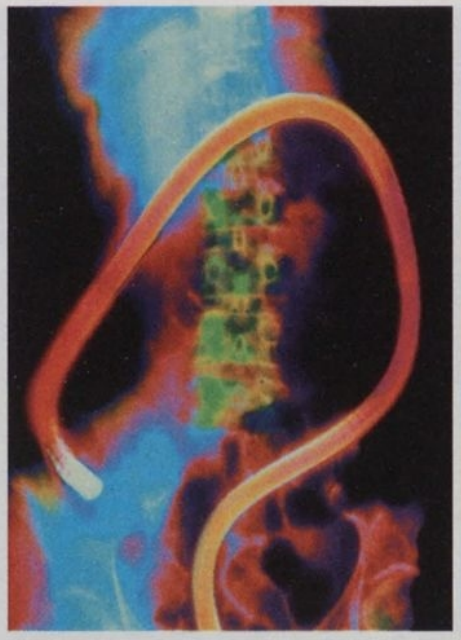
I called my wife Lisa from LaPook's office. She was very calm when I told her the news, but by the time I got home that evening, she already had a shopping cart's worth of herbs and polyp-shrinking potions ready for me. We all cope in different ways. The tougher part was telling my children—not so much that I was sick, because I wasn't, at least not yet—but that they were now at high risk for polyps and would need to start getting screened when they are at least 10 years younger than I was. I was advised by friends to do this while driving in the car, which is a brilliant insight since the activity allows everyone to process information without being forced to look at one another.

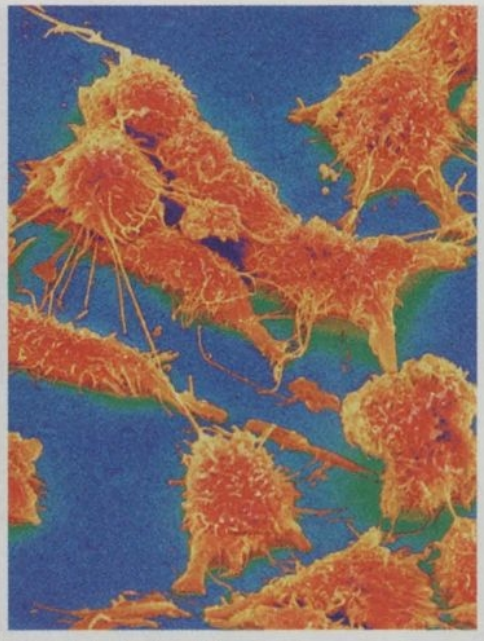
I have four children, ranging in age from 12 to 25, and we spoke when we were driving to the airport in Maine after the wedding of Daphne, our oldest. The kids asked the right questions and took their emotional cues from me. If I wasn't panicking, they wouldn't either.

I also felt a moral imperative to share this news with my viewers. My unlucky outcome offered a teachable moment to help our audience get screened themselves and potentially save some lives. So we got the word out and heard back about hundreds of early diagnoses that resulted from timely screening. I learned the most not from the people who got screened but from those who didn't—or at least who put it off longer than was good for them.

For many of us, health is binary, sort of like being pregnant: we are as healthy as a bull or are about to be hospitalized. In medical school we are taught much about lifesaving interventions during crises but little about the broad societal screening that profoundly affects the likelihood of needing to face end-of-life decisions prematurely. After all, prevention is pretty boring to learn and does not pay well, especially when compared with specialties like mine (cardiac surgery). This colors the discussions we have with our patients. Every week in my clinical practice, I dutifully admonish people to get screened but often leave the details to them. Between selective hearing, human error and confusion, many mismanage the seemingly simple request, and the tests slip away in the sands of time. Accordingly, we devoted a lot of airtime to the idea that both doctors and patients need to change the way they do things.

Of course, throughout all of this, I still had one serious bit of unfinished business to handle. The lentils in my intestines at my initial colonoscopy had partly obstructed LaPook's view, so he insisted on repeating the colonoscopy to look for potentially missed polyps. He gave me a three-month window, which is about standard in a case like this. Remarkably,





Hunter and target *A color X-ray of a colonoscope inside the body, above left, and colon-cancer cells*

Stages of Sick. Different cancers progress in different ways—and so do treatments

TYPE OF CANCER	STAGE I INTERVENTION SURVIVAL RATE*	STAGE II INTERVENTION SURVIVAL RATE	STAGE III INTERVENTION SURVIVAL RATE	STAGE IV INTERVENTION SURVIVAL RATE
PROSTATE	Tumor in one half lobe of prostate Watchful waiting; prostatectomy and/or radiation 100%	Similar mass; PSA higher; cell changes Similar to Stage I, with cryosurgery and other options 100%	Tumor spreads outside prostate Some combo of surgery, radiation, cryo and more 100%	Disease spreads to nearby organs Similar to Stage III, with more-extensive surgery 31%
BREAST	Tumor up to 2 cm; lymph nodes clean Lumpectomy, partial mastectomy, radiation 100%	2 to 5 cm and/or nodes involved Similar to I, though radiation likelier; chemo an option 86%	Larger mass; nodal, chest involvement More-extensive surgery, sometimes preceded by chemo 57%	Disease spreads to distant organs Surgery; chemo, hormones, other systemic therapies 20%
COLON	Spreads into mucous layer of colon Removing diseased section of colon may be enough 93%	Spreads to outer colon layers Surgery; chemo likely. Colostomy a possibility 80%	In colon muscle; lymph involvement More-extensive surgery; chemo and other meds 58%	In one or more distant organs Surgery on colon and distant organs; chemo, cryosurgery 7%

*ALL FIGURES ARE FIVE-YEAR SURVIVAL RATES

FROM LEFT: PHOTO RESEARCHERS; MICRO DISCOVERY—CORBIS

I stalled. He called to remind me. I scheduled and then canceled. He sent periodic e-mails. I procrastinated. Once again, I was engaging in behaviors that had left me dumbfounded when my patients exhibited them. How could they be so casual with their health when there was real reason to worry about it?

Finally, after a full nine months, I came around. Once again, I found myself at home, reading the instructions for mixing the huge chemical cocktail that would wash out my intestines. This time around, I was taking this business seriously. As directed, I drank a big glass every 10 minutes without fail. I also took laxative pills and magnesium citrate and fasted for two days. I did not want a third look in my colon in one year. You could have eaten tapas off my colon lining. LaPook was thrilled. He had a great time looking around until he got to the most distant part of the colon, the most difficult section of the intestines to see and operate on.

Then, through the same anesthetic fog as before, I heard the same concerned voice I'd heard from him during the previous test. He had found another polyp, in a more hard-to-visualize location than the first one. He needed to excise the lesion deftly. Under the influence of the narcotics, I mumbled, "Good luck." Once the polyp was in the bucket, we repeated the same pathology exercise as the first time around and awaited the diagnosis. What kind of a reward was this for showing up dutifully for my test?

The best thing about a colonoscopy is that the test itself can be curative if the polyp is successfully removed before cancer pushes into the colon tissue. But if the tumor has spread into the wall of the intestine, my 10-year survival odds are about 72%. If any lymph node is involved, I am in the 50-50 club, and if the tumor has spread to another organ, I have less than a 5% chance of being alive in 10 years.

This second polyp, which worried me more than the first, turned out to be hyperplastic and not precancerous. This was good news, of course, but the fact that I had had a polyp at all did mean I would have to be vigilant for the rest of my life. I will probably be at little risk of dying from colon cancer—but only as long as I faithfully show up for periodic testing and continue to use a capable gastroenterologist who can meticulously do the procedure.

Getting Smart

THOSE COLON-CANCER NUMBERS ARE LIKEly to keep me on the straight and narrow from now on. But it was an awfully close call. Why did I almost blow it?

It was while I was sitting in my office's waiting room before the second test, watching a half-dozen patients pacing back and forth thinking many of the same anxious thoughts I was thinking, that I finally had the epiphany. The reason so many otherwise rational people don't screen themselves for disease is not that they don't understand the risks—they do. And it's not even that they believe they're somehow immune from disease or death. We all grasp that in a primal way from the time we're very small. But even as we age, death still seems somehow remote—something that will happen at some vaguely later time and that we'll deal with it in some hard-to-fathom way. It's that distance that helps us cope with the idea of our mortality.

What we can grasp much more clearly—and what we dread much more immediately—is the world-jolting way a bad medical diagnosis will affect us today. Our lives get complicated fast, and we are very uncomfortable being uncomfortable. We detest the passage into the unknown—that feeling of being out of control, victimized. Numbers like 75% or 6% or 50-50 are abstract and conceptual. The sickly, swoony feeling you get when your doctor says, "Come see me in my office," is something we can all imagine today. And so we avoid the test to avoid that experience—and that was precisely the choice I had made.

In hindsight, I recognize that the universe had to drill through three distinct layers of arrogance (or denial) as it changed my perspective on cancer and cancer screening. First, I was cavalier going into my initial screening. I was healthy, and I knew the statistics, and I figured the risks didn't apply to me. Second, I felt that decades of research and experience that led to the prep-and-testing guidelines as we know them also didn't apply to me. And last, I felt that the follow-up was somehow a formality and the risk still didn't apply to me. The transformation from Dr. Oz to a modest, wiser Mr. Oz did not become complete until I was staring directly at a pathology report.

So am I satisfied with the results of my birthday-boy bravado? Well, I have learned to embrace the uncertainty and terror that we all experience as we confront threats to our health. I will perhaps fear bad news a little less and will thus show up for screenings more willingly in the future. I am surely pleased that what I learned will help me manage a disease risk that might otherwise have killed me. So, if a newly modest me can still be immodest enough to offer advice: Learn from my mistakes.

The goal, I now know better than I did before, is not to be the perfect patient but simply to be as good a patient as you can be. Many of you have not had any kind of cancer screening in a decade or more. Please know that it's often not too late for a clean medical slate and that even if something is detected, it's better to find it sooner rather than later. The fact that you have never had a screening or have failed to keep up with the appropriate schedule has no bearing on the karma of cancer, but it has an enormous bearing on the outcome.

Most important, my colonoscopy wasn't entirely about me. It was about my wife and our children. It's about our someday grandchildren. It's about my childhood friends whose lives remain closely intertwined with mine. It's about my colleagues and patients at the hospital who teach me as I learn from them. I need to be there for all these people I know and care about. I need to show up in my own life. And you need to show up in yours. Sometimes that requires courage—the courage to undergo a colonoscopy or Pap smear or mammogram or chest X-ray. It's not easy, but it could save your life. And if it helps even a little, remember that I will be rooting for you. ■

Anticancer Diet
It's no guarantee of health, but it sure gives you an edge

Fruits and veggies are packed with antioxidants that fight cell damage related to cancer. Here are some of the best. (See the complete diet at doctoroz.com)

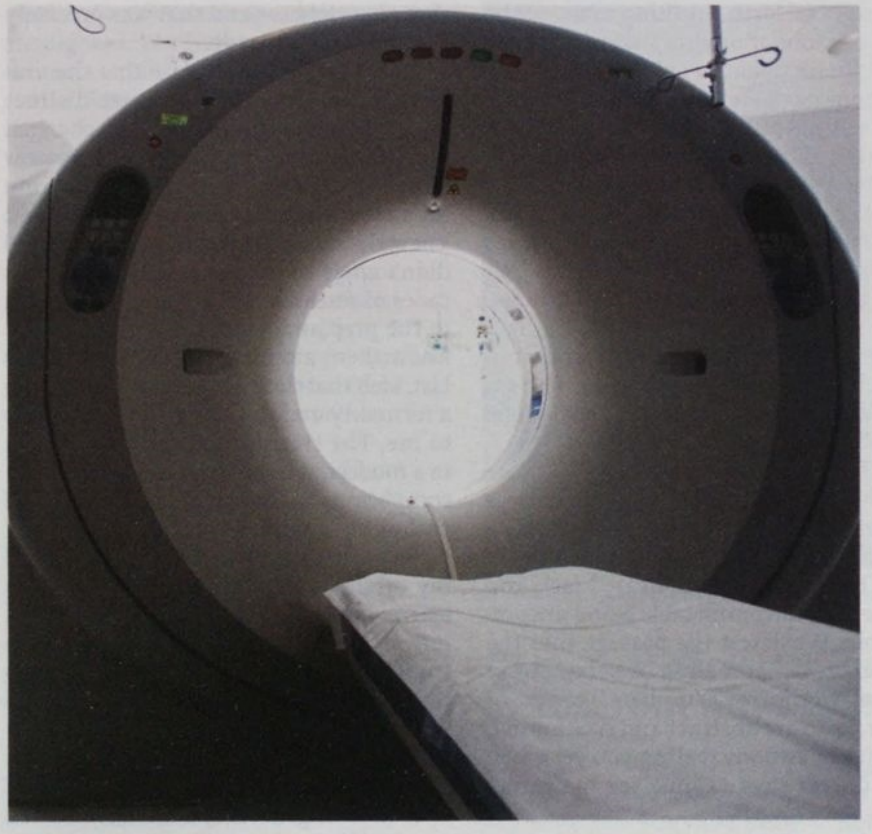
Blueberries, rich in anthocyanins, may reduce tumor growth

Cruciferous veggies like broccoli have compounds that reduce gut cancers

Spinach, high in folate, can guard against DNA mutations

Tomatoes contain a natural sunblock that protects against skin cancer

GETTY IMAGES (4)



Scanxiety. Fear of a postcancer ritual

BY BRUCE FEILER

I AWAKEN ON THIS CHILLY MORNING without speaking. I scoop a few bites of my daughters' oatmeal, then bend down to give them a kiss. The last thing I want to do is alarm them, but I can't resist. "Today's an important day for Daddy," I say, pressing my cheek against theirs for a second longer than normal. Then I get in the car and drive.

The date is not circled in red on my calendar. Often I don't even write it down. I don't have to. It gets locked into my inner Outlook calendar and gradually grows larger in size and gravity as the day approaches, as if I'm being pulled backward through a looking glass. Objects in front of you are closer than they appear.

It's my cancer scan. My regular date with my digital destiny, in which a few seconds of X-rays will show whether the handful of nodules that have been in my lungs since I was diagnosed with bone cancer three years ago have grown larger.

All patients have complicated relationships with their scans not unlike the hate-love relationships we have with other technologies in our lives. We first learn we have cancer from scans, then learn from them if that cancer has shrunk or disappeared, then learn if it has come back. Scans are like revolving doors, emotional roulette wheels that spin us around for a few days and spit us out the other side. Land on red, we're in for another trip to Cancerland; land on black, we have a few more months of freedom.

Scans are not all alike, of course. They come in all shapes, sizes, even flavors. I've had scans that required me to drink disgusting, semisweet liquids, scans that shot a Chernobyl-like dose of radioactive isotopes into my bloodstream, scans that inserted me into a giant doughnut of a machine and scans that used a machine that looks like a huge daddy longlegs and ran a coffin-size metal plate over my body.

But there's one thing all scans have in common: they engender "scanxiety" as they approach. Scanxiety is one of those uniquely modern maladies, like carpal tunnel syndrome and BlackBerry thumb, that arise because we're experiencing something entirely new to human beings. For millennia, doctors and patients would have given almost anything to be able to look inside the human body. Now we have an ailment for the fear of what we might find when we do.

The name *scanxiety* hints at the larger ambiguity we feel toward these medical miracles. On the one hand, as someone who was once months away from being overcome by cancer, I know that scans saved my life. Yet they could be killing me too. One aspect of scans that's rarely discussed is the damage the radiation leaves behind. I broke my left femur in a bicycle accident when I was 5—the same spot where my cancer appeared 38 years later. When I asked my oncologist what I might have done differently had I known such an outcome was possible, he said, "Nothing. If you'd gotten regular scans, the scans might have given you cancer." What about all the radiation I'm currently receiving? "I'm trying to protect you from the cancer you have now," he said, "not one you might have in the future."

The medical profession is aware that patients suffer stress as our scans approach. Dr. Jimmie Holland, a psychiatrist at Memorial Sloan-Kettering Cancer Center, refers to the condition as PSP, or prescan psychosis. "Everybody feels it to one extent or another," she tells me, "particularly people who feel they have to know what's coming next. And if there's anything true about cancer, it's the unpredictability about what's coming next."

As my scans approach, I become increasingly wary and deliberate in my actions. I put off major decisions until after I hear the results. My breathing gets tighter. And those regular drives to the clinic are among the most tense I have—though there's nothing I can do at this juncture to affect the outcome.

On the morning of my latest scan, my lung doctor enters the room tentatively. My body tenses. "How are you feeling?" he asks. "You tell me," I respond. "The nodules haven't changed," he says. "If you didn't have a history of osteosarcoma, I would ask why you are in my office right now."

It occurs to me that scans may be the only area of modern life in which progress is not embraced. We measure success in sameness. As I'm leaving, I stop at the desk and set my next appointment; the calendar starts again. ■

Feiler's memoir of cancer and community, The Council of Dads: A Story of Family, Friendship & Learning How to Live, *has just been released in paperback*

GETTY IMAGES

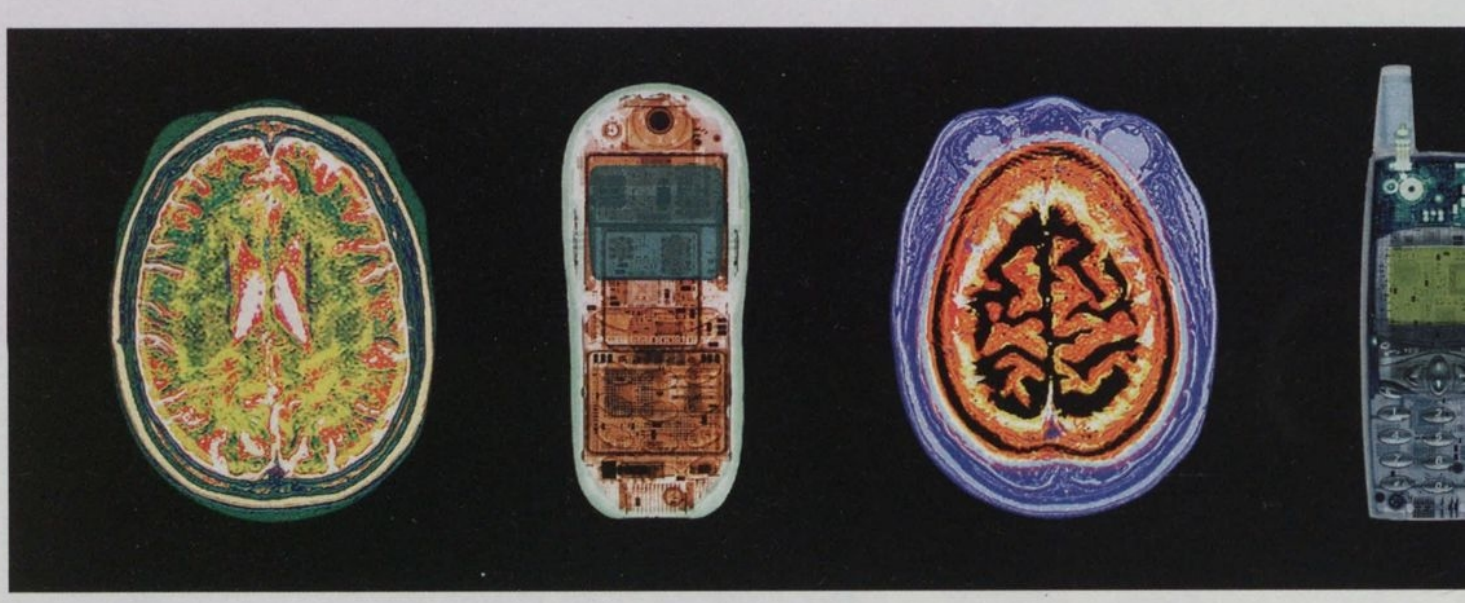
COMFORT IN NUMBERS HUMANITY IN NUMBERS **SUPPORT IN NUMBERS** KNOWLEDGE IN NUMBERS **HEALTH IN NUMBERS℠**

Find out more at HealthInNumbers.com

UnitedHealthcare®

▶ **SUPPORT** When your daughter develops asthma, you worry that she won't be confident enough to do the active things she loves. And there are specialists, lots of doctors, lots of advice. And you worry about that, too. Your hands are already full. At UnitedHealthcare, we understand. That's why we have tools that help her pediatrician coordinate your child's care and make sure all her doctors are on the same page. So, everyone works as a team, and you can all breathe a little easier.

At UnitedHealthcare, we're using our experience and our access to a vast range of health care information to make health care simpler and more responsive. So that you feel like you're being treated like a human being, and your daughter can go on feeling like she's part fish. We're more than 78,000 people looking out for 70 million Americans. That's **HEALTH IN NUMBERS℠**.



Mobile Alert. A new study fuels debate over cell phones and tumors

BY BRYAN WALSH

WHAT GIVES CANCER ITS AWFUL power is its mystery. For thousands of years, there was virtually no mention of the disease in the nascent medical literature because we could not see it, could not recognize our cells rebelling against us. Even though doctors began to understand the nature of certain cancers—and then began reducing death rates through better screening, drugs and surgery—the essential enigma of the disease has never been resolved. Nowhere is that more the case than with brain tumors, which remain as deadly as they are rare. Lung tumors and other cancers can be blamed on lifestyle factors or environmental triggers, but aside from a few statistical quirks, there is little explanation for why a brain tumor strikes one patient and spares another. So if you were that unlucky one, wouldn't you grasp for any reason that the "emperor of maladies"—as oncologist and author Siddhartha Mukherjee calls cancer—had come for you?

To the surprise of many experts, the IARC classified cell-phone-radiation exposure as 'possibly carcinogenic to humans'

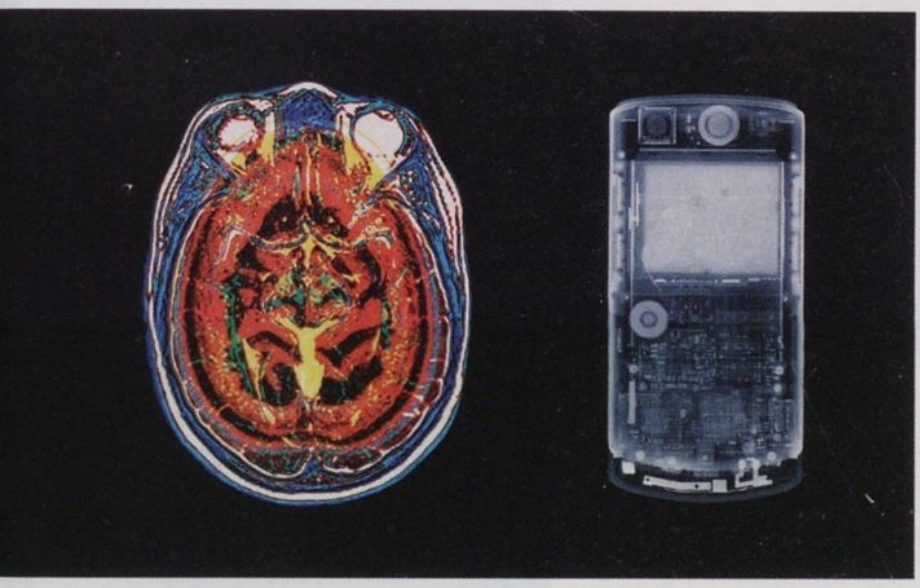
That desperation helps explain why the question of a possible connection between cell-phone radiation and brain tumors remains so heated for a handful of scientists and a larger group of activists and victims. For most cancer experts and medical organizations, it's an open-and-shut case, and cell phones have been exonerated. Radiation is considered potentially carcinogenic when it is powerful enough to ionize atoms or molecules—adding or removing a charged particle. Nuclear decay and X-ray radiation are known ionizers—and known carcinogens—able to rip molecules to shreds and cause genetic damage that leads to cancer. Cell-phone radiation is non-ionizing and thus considered too weak to cause such damage.

The Federal Communications Commission (FCC), the National Cancer Institute, the Food and Drug Administration (FDA) and countless other bodies have agreed that cell phones are safe to use. On the World Health Organization's (WHO) website for "Electromagnetic Fields and Public Health: Mobile Phones," you can read the verdict in black and white: "To date, no adverse health effects have been established for mobile phone use."

But those first two words may be key. At the end of May, 31 scientists from the International Agency for Research on Cancer (IARC)—the WHO body that does what its name says—spent a week reviewing the latest studies on cancer and cell-phone-radiation exposure. And to the surprise of many cancer experts, IARC classified cell-phone-radiation exposure as "possibly carcinogenic to humans." The panel put cell phones in category 2B on the agency's willfully unhelpful scale, below sure carcinogens like cigarette smoke and in the same category as the pesticide DDT and gasoline-engine exhaust. "A review of the human evidence of epidemiological studies shows an increased risk of glioma and malignant types of brain cancer in association with wireless-phone use," Dr. Jonathan Samet, the chairman of the IARC working group, told reporters the day the study was released.

For those who had been sounding the alarm on mobiles, the IARC verdict was a moment of vindication. Last year Devra Davis—an award-winning environmental epidemiologist and the author of *The Secret History of the War on Cancer*—dived into the cell-phone scrum and produced a new book on the subject: *Disconnect.* She argued that the wireless industry had all but suppressed any evidence that cell phones might be dangerous, controlling research by controlling funding just as

BRAIN SCANS: DON FARRALL—GETTY IMAGES; CELL PHONES: UNTITLED X-RAY/NICK VEASEY—GETTY IMAGES



the tobacco industry had for decades. "The world is not fair or just on issues that affect a global multitrillion-dollar industry," Davis wrote in an e-mail to TIME. But the IARC results, she suggested, could begin to change all that.

The cell-phone industry disagrees. "The IARC classification does not mean cell phones cause cancer," John Walls, vice president of public affairs for the industry group CTIA–the Wireless Association, said in a statement. He noted that the FCC and FDA had largely dismissed any link between cell phones and cancer. And many epidemiologists and radiation researchers were similarly puzzled by IARC's conclusions. The agency admitted that the only links it found between increased cell-phone use and certain kinds of brain tumors were epidemiological—meaning that they were based on case-control studies that followed people with cancer, vs. healthy subjects, and asked how often they had used their phones. But there's still no clear biological explanation—from animal models or anything else—that explains how cell-phone radiation could cause brain tumors. Nor have brain-cancer rates risen in the two decades during which cell phones went from being used by a wealthy few to being used by some 3 billion people around the globe. "To the best of our knowledge, cell-phone radiation does not make use of any of the pathways known to cause cancer," says David Savitz, a Brown University epidemiologist who has studied the environmental causes of cancer. "Everything I've seen points in the opposite direction" of IARC's conclusion.

IARC itself is equivocal about its findings. Specifically, the study found "limited" evidence of a relationship between cell-phone use and glioma and acoustic neuroma, while evidence for other types of cancer was considered inadequate. Limited evidence is slightly more damning than inadequate evidence, but neither is a slam dunk. What's more, while DDT and other nasty things are classified as 2B carcinogens, so are seemingly unthreatening products like pickles and coffee. Most troubling of all, the majority of epidemiological studies done so far are flawed and out of date, including the ones on which the IARC based its report. The freshest data the group was able to use comes from 2004. Think about how much cell phones—and cell-phone habits—have changed in that time.

Given all these reasons to doubt IARC's findings, it would have helped if the researchers had released the details of how they came to the unsettling conclusion they reached, but the full story won't come out until publication in a journal on July 1. Ultimately, IARC's leaders essentially argued that it was better to be safe than sorry at a time when nearly the entire planet is exposed to cell-phone radiation.

"So many people around the world are now using mobile phones," Samet said. "And as use patterns grow, we can anticipate more people using phones longer and longer. What we need is ongoing research and tracking of the way people actually use cell phones."

Even the cell-phone manufacturers can agree with that conclusion and voice no opposition to more research. But it's important to keep the studies independent of the industry and other vested interests, which hasn't been the case so far. When companies bankroll research on their own products, even objective studies can be tainted by the appearance of bias, increasing neither public safety nor public confidence. Davis suggests that a major interdisciplinary research program on bioelectromagnetics be undertaken, funded by a small fee on each handset sold. The National Toxicology Program is already working on what many hope will be the gold standard of animal studies—submitting rats and mice to cell-phone radiation at regular intervals for 20 hours a day. Such total-immersion dosing might help us reach an unambiguous answer.

But chances are just as good that absolute clarity will never happen. What the cell-phone controversy teaches us yet again is that cancer still has its secrets and that it fights to keep them. We'll search for causes wherever we can because the alternative—that we simply can't know why these rare and horrible things happen—is too difficult to bear. ■

Just in Case. Five easy ways to reduce your exposure to cell-phone radiation

1. **Get Wired**
Using a wired headset can significantly cut down any exposure to radiation while you use your cell phone. Wired headsets are much better than Bluetooth devices.

2. **Get Used to Texting**
Teens are doing it more than ever. If you spend most of your cell-phone time texting or using apps, your device should remain far away from your brain.

3. **Don't Use Your Cell Phone as an Alarm Clock**
This is (literally) a no-brainer. If you use your phone to wake up, you'll probably have it close by your head for hours while you sleep. Don't.

4. **Watch for Radiation Hot Spots**
Cell phones tend to emit significantly more radiation when the signal is weak, for instance in rural areas, elevators and buildings.

5. **Use a Radiation-Blocking Case**
The good people at Pong Research sell a case that will block much of a phone's radiation for $30 to $50.

The Screening Dilemma

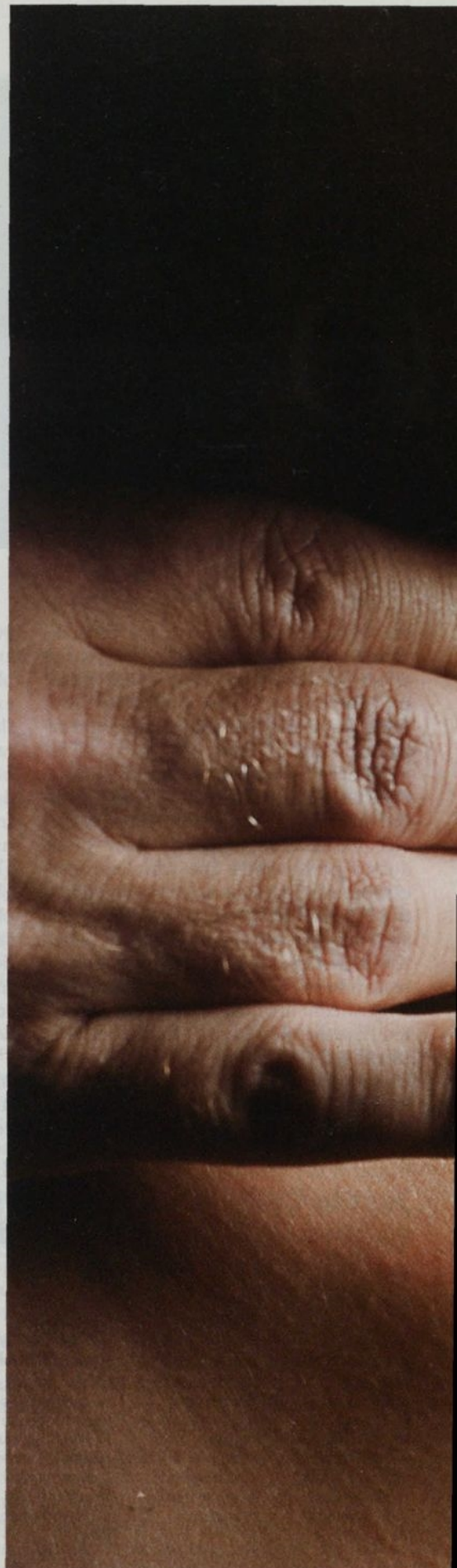
Are some cancers better left undiscovered?

BY KATE PICKERT

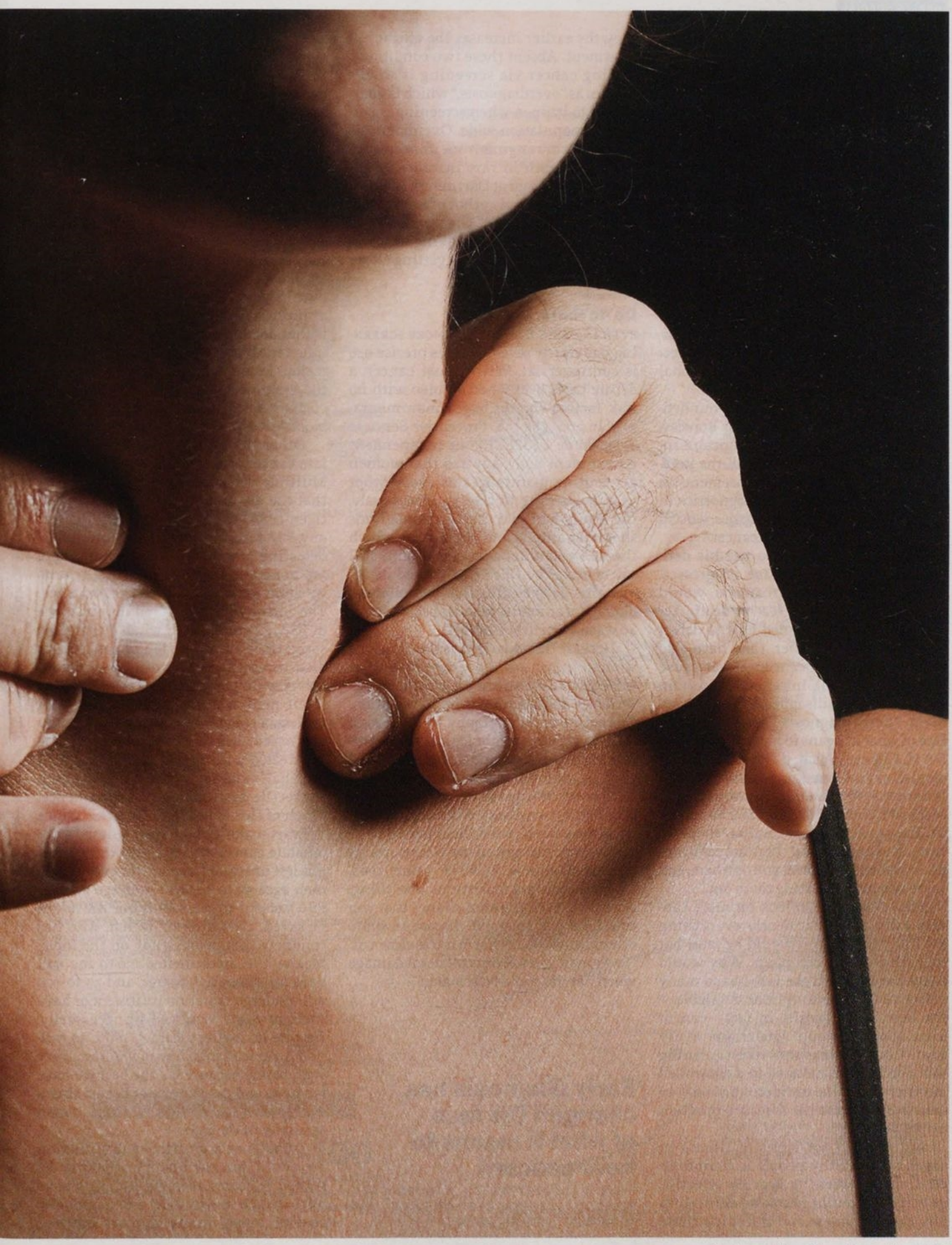
IN THE MID-19TH CENTURY, A GERMAN PATHOLOgist named Rudolf Virchow discovered that leukemia was caused by the rapid multiplication of abnormal white blood cells. Just like that, with some autopsy samples and a light microscope, Virchow defined cancer—a process in which healthy cells mutate and then reproduce. Before this revelation and for many decades after it, cancerous tumors were found and cut out only when they became visible or palpable. But Virchow's notion that cancer cells start out normal and then go rogue laid a foundation for modern medicine's approach to the disease: early detection.

These days, we no longer have to wait for tumors to make themselves evident. We don't even have to wait for symptoms. Now doctors look for abnormal cells in healthy people, hoping to catch and remove them before they cause sickness, a strategy that has had remarkable results. Along with treatment advances, mammography has reduced the U.S. breast-cancer mortality rate by some 30% since 1989. Pap smears have helped lower the cervical-cancer mortality rate by 60% since 1975. The rate of death from colorectal cancer is also steadily dropping, thanks largely to screening.

It seems that we should be better off finding all



Checking for signs
A doctor feels a patient's neck for lumps that could indicate thyroid cancer



Photograph by Elinor Carucci for TIME

cancer early. But this logic may be flawed. Virchow never imagined that modern medicine would have the tools to find tiny cancers at such early stages. The field now includes highly sophisticated blood tests, ultrasound, computed tomography (CT), X-ray, magnetic resonance imaging (MRI) and fine-needle biopsy. Paradoxically, we've become so adept at finding abnormal cells early that there are more cancer patients than ever before. About 4% of the U.S. population are "cancer survivors." "If we had a 100% sensitive test that could pick up everything a pathologist would call cancer, it's conceivable that most of us, if not all of us, would be found to have cancer," says Dr. Barnett Kramer, a medical oncologist and former associate director for disease prevention for the National Institutes of Health (NIH).

"One of the problems is what our definition of cancer is," says Dr. Otis Brawley, chief medical officer of the American Cancer Society (ACS). "Through all the iterations in science, all the advancements in imaging, in understanding diagnostics, in understanding how to do biopsies, we still use Virchow's definition of cancer."

Happily, we don't also use his definition of how the disease progresses. Virchow believed all cancers would eventually spread and lead to death. Yet as scientists have learned how to detect and treat cancer earlier, they have also learned that some cancers never cause any sickness at all. In rare cases, certain cancers can even disappear without treatment. "Early diagnosis has changed the face of what it means to have cancer," says Dr. H. Gilbert Welch, a clinical epidemiologist, cancer-screening researcher and internist at the Veterans Administration Medical Center in White River Junction, Vt. The problem, he says, is that "there are really bad cancers and there are really innocuous ones that never go anywhere, and we're not good at sorting them out."

So we continue to look for more cancers early and treat nearly everything we find as though it would be fatal not to. Patients don't complain. Why would they? Even though the U.S. has so many effective treatment options available—the best in the world, in fact—cancer kills some 600,000 Americans every year. Countermeasures like screening that can be administered in a controlled manner seem like antidotes not only to cancer but also to the disease's inherent unpredictability.

But looking for signs of illness in seemingly healthy people is complicated. Cancer screening is truly effective only if the growths found would eventually cause sickness and if finding those growths earlier increases the efficacy of treatment. Absent these two conditions, finding cancer via screening is what's known as "overdiagnosis," which is guaranteed to happen when screening is performed population-wide. Overdiagnosis causes harm ranging from unnecessary worry to death in rare instances. Says Welch, a professor at Dartmouth Medical School and the lead author of a new book titled *Overdiagnosed:* "Theoretically, we could spend every day looking for early signs of disease. And we're getting closer and closer to that."

Do No Harm, Unless ...

EVEN IN CASES IN WHICH CANCER SCREENING has clearly saved lives, its precise use is controversial. With breast cancer, a debate rages over when women with no risk factors should begin mammography. In 2009 the U.S. Preventive Services Task Force (USPSTF), an independent government body, advised that women get routine mammograms every other year beginning at age 50. Previously, the group had said that mammograms should be annual and begin at 40, which the ACS and other advocacy groups still say is best. The USPSTF changed its advice after determining that the collateral damage of annual screening beginning at 40 wasn't worth the payoff.

Here are the odds. To save the life of one woman in her 40s, 1,904 would have to undergo annual screening. Beyond inconvenience and overexposure to radiation, this excess mammography would lead to false positives; psychological stress, including depression; and unnecessary surgery. In addition, much of the abnormal cell growth detected in women in their 40s could have been detected in their 50s with no adverse effects from the delay.

Not surprisingly, many women railed against the new USPSTF guidelines. Understanding a statistic is one thing. Accepting even the slim chance that you could die of a treatable disease to spare others unnecessary harm is less clear-cut. No woman cares about collateral damage when her life could be at stake.

'Early diagnosis has changed the face of what it means to have cancer.'

—DR. H. GILBERT WELCH, CANCER-SCREENING RESEARCHER AND LEAD AUTHOR OF *OVERDIAGNOSED*

Colonoscopy, the examination of the colon from within to look for cancer and precancerous polyps, is an accepted standard of care. Doctors often advise average-risk patients to get a colonoscopy at age 50 and, if nothing suspicious is found, every 10 years after that. *(See Dr. Oz, page 50.)* Yet this advice is given despite the fact that no long-term randomized trial—the industry standard for amassing bulletproof data—has shown colonoscopy, a highly invasive procedure, to be more effective at saving lives than a simple test looking for blood in fecal material or a sigmoidoscopy, a procedure in which just a portion of the colon is examined. One advantage of colonoscopy is that doctors can screen for cancer and intervene if they suspect it, removing suspicious lesions while the patient is still on the examination table. (The USPSTF says colonoscopy, sigmoidoscopy and the fecal-blood test can all be effective.)

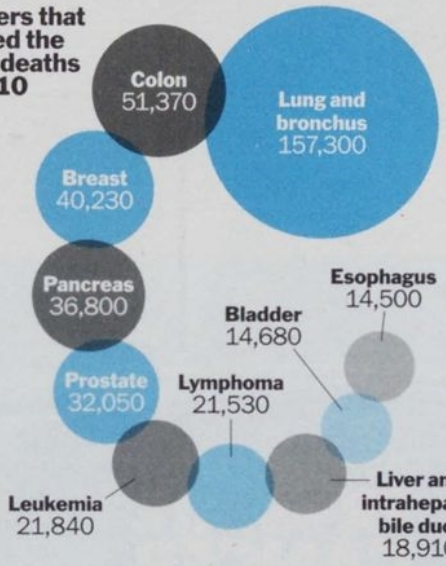
Other kinds of screening, like for prostate cancer, are even more contentious. Multiple scientific trials have proved that the ubiquitous prostate-specific antigen (PSA) test saves very few lives, if any. PSA tests are notoriously unreliable, detecting potential cancers where there are none and returning normal results in some men who have malignancies. The doctor who discovered the existence of PSA, a protein that, when elevated, is sometimes an indication of cancer, has disavowed the test, calling it a "profit-driven public-health disaster."

Of men who undergo routine PSA testing, a staggering 17% are eventually diagnosed with cancer, and most of these are treated with radiation or surgery. At least half experience complications such as erectile dysfunction or incontinence. Much of this is needless suffering, since the vast majority of men diagnosed with prostate cancer will not die of it, even if it is left untreated. In fact, for every 1,000 men ages 55 to 70 who undergo annual PSA tests for 10 years, only one life might be saved, according to Welch, who has conducted extensive study on the topic. Meanwhile, an estimated 150 to 200 will have an unneeded biopsy, and 30 to 100 will undergo radiation treatment or have their prostate removed unnecessarily. Despite its ineffectiveness, some 30 million American men have a PSA test every year, partly because it's the best we have for now and prostate cancer remains a deadly disease, killing about 32,000 men annually in the U.S.

Impotence and urinary dysfunction are awful, but the history of poorly designed cancer screening includes tests with much more dire consequences. In the 1960s, many doctors advised

Constant Vigilance. There's more to screening than early detection

Cancers that caused the most deaths in 2010



Cancer Celebs

Famous survivors and their relatives have the power to increase screening rates—for better or for worse

KATIE COURIC
After her husband died of **COLON CANCER,** Couric had a colonoscopy on live TV. Use of the procedure spiked 20%

BOB DOLE
Diagnosed with **PROSTATE CANCER,** Dole had his prostate removed and urged men to get PSA tests

BETTY FORD AND HAPPY ROCKEFELLER
The First and Second ladies admitted having **BREAST CANCER,** then a taboo topic

MEGHAN MCCAIN
Her father Senator John McCain had **MELANOMA** surgery on his face, and she starred in an ad to raise awareness

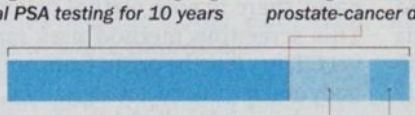
Benefits vs. Harm

Saving one life via screening often means unnecessary worry, biopsies and treatment for many others. Prostate-cancer screening using a blood test called PSA is one example

PROSTATE CANCER

1,000
men ages 55 to 70 undergoing annual PSA testing for 10 years

1
might avoid a prostate-cancer death



150–200
will have a false alarm requiring a biopsy

30–100
will be overdiagnosed and receive an unnecessary radical prostatectomy or radiation

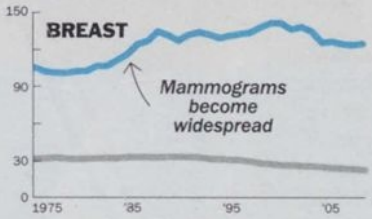
Screening's Recent History

Early detection is considered effective if more diagnoses mean fewer people die. Here's a snapshot of when this is and isn't the case, along with guidelines from the U.S. Preventive Services Task Force on screening for various cancers.

DIAGNOSES VS. MORTALITY RATE (PER 100,000 AMERICANS) ■ ■

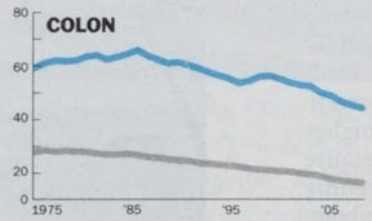
SHOULD YOU GET SCREENED?

DIAGNOSES IN 2010



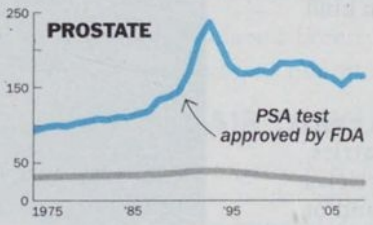
YES Get a mammogram every other year beginning at age 50. Start earlier if you and your doctor decide that's best or if you have risk factors, like a family history of breast cancer

209,060



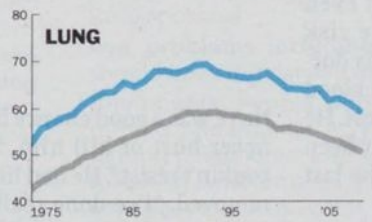
YES Get a fecal occult blood test, sigmoidoscopy or colonoscopy at age 50 and at regular intervals until age 75

102,900



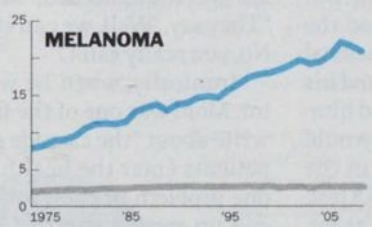
MAYBE There isn't enough evidence to determine whether the prostate-specific antigen (PSA) test results in more harm than good

217,730



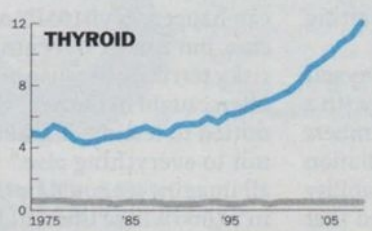
MAYBE Two randomized trials to assess lung-cancer screening are under way. For now, the task force says the harm-benefit balance is unclear

222,520



MAYBE There isn't enough evidence to determine whether whole-body skin examinations by primary-care doctors or patients themselves produce more benefit or harm

68,130



PROBABLY NOT Guidelines are "under review" but aren't a top priority because the mortality rate is so low. A 1996 guideline advised against screening

44,670

CLOCKWISE FROM TOP LEFT: SLAVEN VLASIC—GETTY IMAGES; STAN HONDA—AFP/GETTY IMAGES; JON KOPALOFF—FILMMAGIC/GETTY IMAGES; JIM SMEAL—WIREIMAGE/GETTY IMAGES (2)

SOURCES, CLOCKWISE FROM TOP LEFT: AMERICAN CANCER SOCIETY; NATIONAL CANCER INSTITUTE; U.S. PREVENTIVE SERVICES TASK FORCE; DR. H. GILBERT WELCH (FIGURES ARE ESTIMATES)

American smokers to get chest X-rays to check for lung cancer, the No. 1 cancer killer in the U.S. In the 1970s, the ACS followed suit, and millions heeded the advice. Yet a decade later, studies showed that Americans who were screened for lung cancer via chest X-ray actually had a slightly higher mortality rate than those who were not screened. The excess deaths were due in part to the risky surgery that patients underwent when something was found.

As recently as the 1980s and '90s, doctors in Japan and Quebec screened babies for neuroblastoma, a cancer of the nerve tissue that's the most common type of cancer in infants. The screening revealed alarmingly high cancer rates. "People thought there was a neuroblastoma epidemic," says the ACS's Brawley. "Kids started getting biopsied and then getting surgery, which means basically being filleted open for an 18-month-old." The result was the same as with lung-cancer screening. Mortality rates were slightly higher among the screened population because of deaths caused by surgery. The screening was discontinued. Doctors, it turned out, couldn't distinguish between fatal neuroblastoma and the far more common kind that simply vanishes over time.

Screening on the go *A mobile prostate-cancer-testing unit open for business at a stop in Minneapolis*

Cascades and Incidentalomas

DR. JIM MOLD DID NOT WANT A PSA TEST. A family doctor trained in geriatrics, Mold had published journal articles about the hazards of screening and of medical intervention for men with prostate cancer. So it made sense that even though he was 58, solidly in the risk group for prostate cancer and in his doctor's office for a series of unrelated blood tests, he had chosen to forgo a PSA test. He got one anyway. It had inadvertently been added to his order. He noticed at the last minute but didn't protest.

The results showed Mold's PSA was elevated, which typically leads to a biopsy. But Mold was not typical. He understood the test's limitations. So he reread the medical literature on the subject and consulted his colleagues. He avoided sex and treated himself with antibiotics, both of which would have brought his PSA levels down in the absence of cancer. He had another PSA test. Elevated. So he opted for a biopsy. Cancer. Prostate cancer is often slow-growing, so some patients choose watchful waiting over surgery or radiation.

"I was trying to imagine myself living—hopefully 40 more years—with a cancer growing inside of me," remembers Mold. He knew that surgery or radiation could end his sex life and impair his ability to urinate. He knew studies showed that there was a good chance his cancer would never hurt or kill him. Still, he says, "I couldn't resist." He had his entire prostate removed. "I've done really well, and I'm really grateful that I had it done, but I don't know if it was needed," says Mold, now 62. "They say, 'Well, we can stop at any point.' No, you really can't."

Ironically, when he was a young doctor, Mold was one of the first clinicians to write about "the cascade effect," in which patients enter the health care system for one problem or even routine testing and end up getting shuttled through myriad related or unrelated interventions. This can happen in virtually any area of medicine, but cancer screening is particularly risky territory because healthy people are often caught in the net. "Once you've committed to testing, it makes sense to commit to everything else," Welch says. We all imagine we could be the 1 in 1,000 or 1 in 10,000 whose life could be on the line.

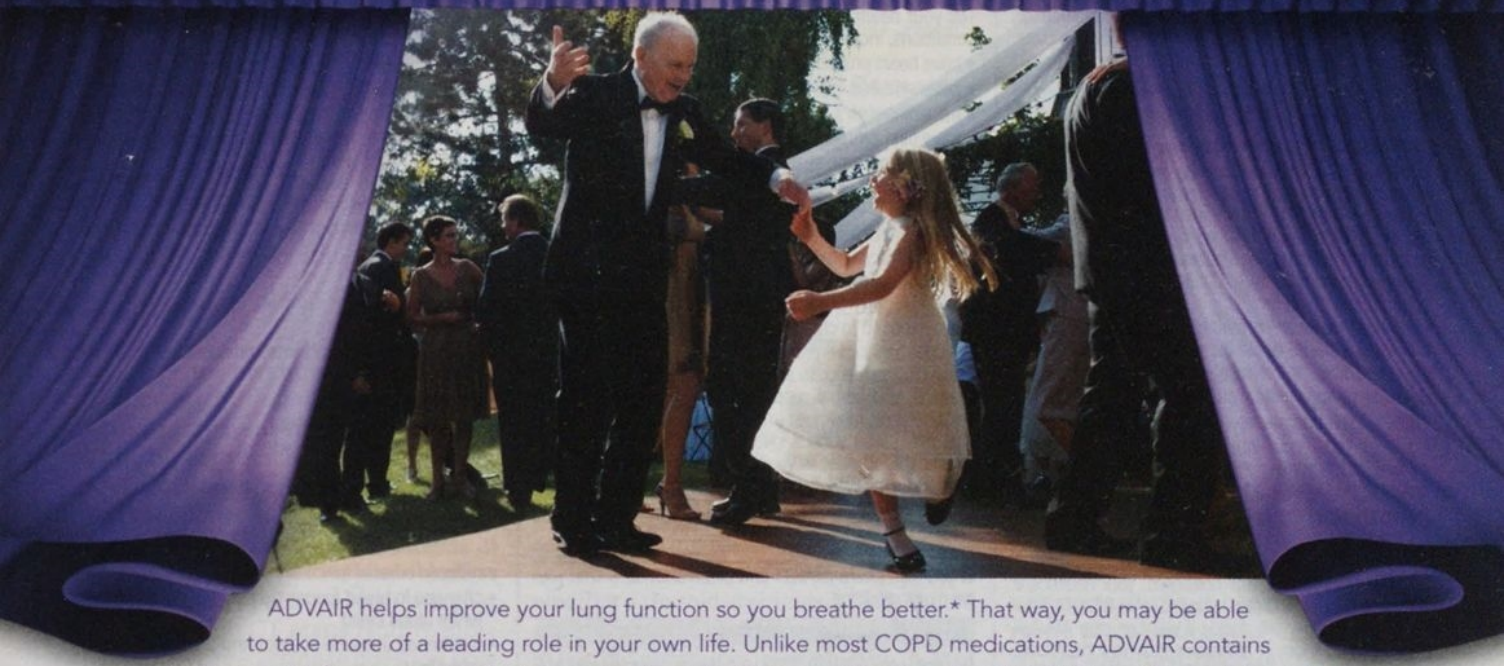
"The most important decision is whether or not to be screened," says Dr. Matt Handley, a family doctor and associate medical director for quality and informatics at Group Health, a Seattle-based health-and-insurance system with a zealous adherence to care based on hard evidence.

The chances of getting caught in a diagnostic cascade are increasing thanks to advanced imaging technology. For colorectal cancer, in addition to screening tests that analyze feces and survey the colon internally, there is now virtual colonoscopy. This screening method uses radiation, via CT, to view the organ from outside the body and reconstruct it digitally. CT colonography, as it is called, has advantages. No sedatives are required, and a patient can skip the part in which a doctor threads a scope and light through the rectum. The procedure is also cheaper than a colonoscopy. Whatever savings colonography

DAVID BOWMAN FOR TIME

COPD?

Find out if ADVAIR® can help you breathe better and take center stage in your own life.



ADVAIR helps improve your lung function so you breathe better.* That way, you may be able to take more of a leading role in your own life. Unlike most COPD medications, ADVAIR contains both an anti-inflammatory† and a long-acting bronchodilator working together. ADVAIR is not for, and should not be used to treat, sudden, severe symptoms of COPD. It won't replace a rescue inhaler. Ask your doctor about ADVAIR.

To get your first full prescription free and to save on refills,‡ visit ADVAIR.com or call 1-800-520-4197.

ADVAIR DISKUS 250/50 is approved for adults with COPD, including chronic bronchitis, emphysema, or both. You should only take 1 inhalation of ADVAIR twice a day. Higher doses will not provide additional benefits.

IMPORTANT SAFETY INFORMATION ABOUT ADVAIR DISKUS 250/50 FOR COPD:

- Do not use ADVAIR to treat sudden, severe symptoms of COPD. Always have a rescue inhaler medicine with you to treat sudden symptoms.
- Do not use ADVAIR DISKUS if you have severe allergy to milk proteins. Ask your doctor if you are not sure.
- **Do not use ADVAIR more often than prescribed. Do not take ADVAIR with other medicines that contain long-acting beta$_2$-agonists for any reason.** Tell your doctor about medicines you take and about all of your medical conditions.
- **ADVAIR can cause serious side effects, including:**
  - **serious allergic reactions.** Call your healthcare provider or get emergency medical care if you get any of the following symptoms of a serious allergic reaction: rash; hives; swelling of the face, mouth, and tongue; or breathing problems
  - **sudden breathing problems immediately after inhaling your medicine**
  - **effects on heart:** increased blood pressure, a fast and irregular heartbeat, chest pain
  - **effects on nervous system:** tremor, nervousness
  - **reduced adrenal function (may result in loss of energy)**
  - **changes in blood (sugar, potassium, certain types of white blood cells)**
  - **weakened immune system and a higher chance of infections.** You should avoid exposure to chickenpox and measles, and, if exposed, consult your healthcare provider without delay. Worsening of existing tuberculosis, fungal, bacterial, viral, or parasitic infections, or ocular herpes simplex may occur
  - **lower bone mineral density.** This may be a problem for people who already have a higher chance of low bone density (osteoporosis)
  - **eye problems including glaucoma and cataracts.** You should have regular eye exams while using ADVAIR
  - **pneumonia.** People with COPD have a higher chance of getting pneumonia. ADVAIR may increase the chance of getting pneumonia. Call your doctor if you notice any of the following symptoms: increase in mucus (sputum) production, change in mucus color, fever, chills, increased cough, increased breathing problems
- **Common side effects of ADVAIR DISKUS 250/50 for COPD include** thrush in the mouth and throat, throat irritation, hoarseness and voice changes, viral respiratory infections, headache, and muscle and bone pain.

*Measured by a breathing test in people taking ADVAIR 250/50, compared with people taking either fluticasone propionate 250 mcg or salmeterol 50 mcg. Your results may vary.

†It is not known how anti-inflammatories work in COPD.

‡Restrictions apply. See advairCOPD.com for eligibility rules.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Please see Brief Summary of Important Safety Information about ADVAIR DISKUS on adjacent page.

GSK for you — If you don't have prescription coverage and can't afford your medicines, visit GSKforYou.com or call 1-866-GSK-FOR-U (1-866-475-3678)

ADVAIR DISKUS® 250/50
(fluticasone propionate 250 mcg and salmeterol 50 mcg inhalation powder)

gsk GlaxoSmithKline

ADVAIR DISKUS®

(fluticasone propionate and salmeterol inhalation powder) BRIEF SUMMARY

This summary does not take the place of talking to your healthcare provider about your medical condition or treatment. See full Prescribing Information for complete product information.

What is the most important information I should know about ADVAIR DISKUS?

ADVAIR DISKUS can cause serious side effects, including:

1. **People with asthma who take long-acting beta$_2$-adrenergic agonist (LABA) medicines, such as salmeterol (one of the medicines in ADVAIR DISKUS), have an increased risk of death from asthma problems.** It is not known whether fluticasone propionate, the other medicine in ADVAIR DISKUS, reduces the risk of death from asthma problems seen with salmeterol.
   - **Call your healthcare provider if breathing problems worsen over time while using ADVAIR DISKUS.** You may need different treatment.
   - **Get emergency medical care if:**
     - breathing problems worsen quickly and
     - you use your rescue inhaler medicine, but it does not relieve your breathing problems.
2. ADVAIR DISKUS should be used only if your healthcare provider decides that your asthma is not well controlled with a long-term asthma control medicine, such as inhaled corticosteroids.
3. When your asthma is well controlled, your healthcare provider may tell you to stop taking ADVAIR DISKUS. Your healthcare provider will decide if you can stop ADVAIR DISKUS without loss of asthma control. Your healthcare provider may prescribe a different asthma control medicine for you, such as an inhaled corticosteroid.
4. Children and adolescents who take LABA medicines may have an increased risk of being hospitalized for asthma problems.

What is ADVAIR DISKUS?

- ADVAIR DISKUS combines an inhaled corticosteroid medicine, fluticasone propionate (the same medicine found in FLOVENT®), and a LABA medicine, salmeterol (the same medicine found in SEREVENT®).
  - Inhaled corticosteroids help to decrease inflammation in the lungs. Inflammation in the lungs can lead to asthma symptoms.
  - LABA medicines are used in people with asthma and chronic obstructive pulmonary disease (COPD). LABA medicines help the muscles around the airways in your lungs stay relaxed to prevent symptoms, such as wheezing and shortness of breath. These symptoms can happen when the muscles around the airways tighten. This makes it hard to breathe. In severe cases, wheezing can stop your breathing and cause death if not treated right away.
- ADVAIR DISKUS is used for asthma and COPD as follows:

Asthma

ADVAIR DISKUS is used to control symptoms of asthma and to prevent symptoms such as wheezing in adults and children aged 4 years and older.

ADVAIR DISKUS contains salmeterol (the same medicine found in SEREVENT). LABA medicines, such as salmeterol, increase the risk of death from asthma problems.

ADVAIR DISKUS is not for adults and children with asthma who are well controlled with an asthma control medicine, such as a low to medium dose of an inhaled corticosteroid medicine.

COPD

COPD is a chronic lung disease that includes chronic bronchitis, emphysema, or both. ADVAIR DISKUS 250/50 is used long term, 2 times each day to help improve lung function for better breathing in adults with COPD. ADVAIR DISKUS 250/50 has been shown to decrease the number of flare-ups and worsening of COPD symptoms (exacerbations).

Who should not use ADVAIR DISKUS?

Do not use ADVAIR DISKUS:

- to treat sudden, severe symptoms of asthma or COPD.
- if you have a severe allergy to milk proteins. Ask your doctor if you are not sure.

What should I tell my healthcare provider before using ADVAIR DISKUS?

Tell your healthcare provider about all of your health conditions, including if you:

- **have heart problems**
- **have high blood pressure**
- **have seizures**
- **have thyroid problems**
- **have diabetes**
- **have liver problems**
- **have osteoporosis**
- **have an immune system problem**
- **are pregnant or planning to become pregnant.** It is not known if ADVAIR DISKUS may harm your unborn baby.
- **are breastfeeding.** It is not known if ADVAIR DISKUS passes into your milk and if it can harm your baby.
- **are allergic to any of the ingredients in ADVAIR DISKUS, any other medicines, or food products**
- **are exposed to chickenpox or measles**

Tell your healthcare provider about all the medicines you take including prescription and non-prescription medicines, vitamins, and herbal supplements. ADVAIR DISKUS and certain other medicines may interact with each other. This may cause serious side effects. Especially, tell your healthcare provider if you take ritonavir. The anti-HIV medicines NORVIR® (ritonavir capsules) Soft Gelatin, NORVIR (ritonavir oral solution), and KALETRA® (lopinavir/ritonavir) Tablets contain ritonavir.

Know the medicines you take. Keep a list and show it to your healthcare provider and pharmacist each time you get a new medicine.

How do I use ADVAIR DISKUS?

Do not use ADVAIR DISKUS unless your healthcare provider has taught you and you understand everything. Ask your healthcare provider or pharmacist if you have any questions.

- Children should use ADVAIR DISKUS with an adult's help, as instructed by the child's healthcare provider.
- Use ADVAIR DISKUS exactly as prescribed. **Do not use ADVAIR DISKUS more often than prescribed.** ADVAIR DISKUS comes in 3 strengths. Your healthcare provider has prescribed the one that is best for your condition.
- The usual dosage of ADVAIR DISKUS is 1 inhalation 2 times each day (morning and evening). The 2 doses should be about 12 hours apart. Rinse your mouth with water after using ADVAIR DISKUS.
- If you take more ADVAIR DISKUS than your doctor has prescribed, get medical help right away if you have any unusual symptoms, such as worsening shortness of breath, chest pain, increased heart rate, or shakiness.
- If you miss a dose of ADVAIR DISKUS, just skip that dose. Take your next dose at your usual time. Do not take 2 doses at one time.
- Do not use a spacer device with ADVAIR DISKUS.
- Do not breathe into ADVAIR DISKUS.
- **While you are using ADVAIR DISKUS 2 times each day, do not use other medicines that contain a LABA for any reason.** Ask your healthcare provider or pharmacist if any of your other medicines are LABA medicines.
- Do not stop using ADVAIR DISKUS or other asthma medicines unless told to do so by your healthcare provider because your symptoms might get worse. Your healthcare provider will change your medicines as needed.
- ADVAIR DISKUS does not relieve sudden symptoms. Always have a rescue inhaler medicine with you to treat sudden symptoms. If you do not have an inhaled, short-acting bronchodilator, call your healthcare provider to have one prescribed for you.

Call your healthcare provider or get medical care right away if:

- your breathing problems worsen with ADVAIR DISKUS
- you need to use your rescue inhaler medicine more often than usual
- your rescue inhaler medicine does not work as well for you at relieving symptoms
- you need to use 4 or more inhalations of your rescue inhaler medicine for 2 or more days in a row
- you use 1 whole canister of your rescue inhaler medicine in 8 weeks' time
- your peak flow meter results decrease. Your healthcare provider will tell you the numbers that are right for you.
- you have asthma and your symptoms do not improve after using ADVAIR DISKUS regularly for 1 week

What are the possible side effects with ADVAIR DISKUS?

- **ADVAIR DISKUS can cause serious side effects, including:**
- **See "What is the most important information I should know about ADVAIR DISKUS?"**
- **serious allergic reactions.** Call your healthcare provider or get emergency medical care if you get any of the following symptoms of a serious allergic reaction:
  - rash
  - hives
  - swelling of the face, mouth, and tongue
  - breathing problems
- **sudden breathing problems immediately after inhaling your medicine**
- **effects on heart**
  - increased blood pressure
  - a fast and irregular heartbeat
  - chest pain
- **effects on nervous system**
  - tremor
  - nervousness
- **reduced adrenal function (may result in loss of energy)**
- **changes in blood (sugar, potassium, certain types of white blood cells)**
- **weakened immune system and a higher chance of infections**
- **lower bone mineral density.** This may be a problem for people who already have a higher chance of low bone density (osteoporosis).
- **eye problems including glaucoma and cataracts.** You should have regular eye exams while using ADVAIR DISKUS.
- **slowed growth in children.** A child's growth should be checked often.
- **pneumonia.** People with COPD have a higher chance of getting pneumonia. ADVAIR DISKUS may increase the chance of getting pneumonia. Call your healthcare provider if you notice any of the following symptoms:
  - increase in mucus (sputum) production
  - change in mucus color
  - fever
  - chills
  - increased cough
  - increased breathing problems

Common side effects of ADVAIR DISKUS include:

Asthma:

- upper respiratory tract infection
- throat irritation
- hoarseness and voice changes
- thrush in the mouth and throat
- bronchitis
- cough
- headache
- nausea and vomiting

COPD:

- thrush in the mouth and throat
- throat irritation
- hoarseness and voice changes
- viral respiratory infections
- headache
- muscle and bone pain

In children with asthma, infections in the ear, nose, and throat are common.

Tell your healthcare provider about any side effect that bothers you or that does not go away.

These are not all the side effects with ADVAIR DISKUS. Ask your healthcare provider or pharmacist for more information.

Call your doctor for medical advice about side effects. You may report side effects to the FDA at 1-800-FDA-1088.

Ask your healthcare provider or pharmacist for additional information about ADVAIR DISKUS. You can also contact the company that makes ADVAIR DISKUS (toll free) at 1-888-825-5249 or at www.advair.com.

GlaxoSmithKline
Research Triangle Park, NC 27709
ADD:7MG January 2011

AD5622R0 March 2011

might appear to present, however, are far outweighed by the cost of following up on all the abnormalities that can show up in the resulting images. These discoveries are known in the medical field as incidentalomas and are typically harmless. As many as 16% of patients undergoing their first virtual colonoscopy are found to have them. Cue the cascade.

Incidentalomas take up so much time, energy and money that some doctors are questioning whether imaging technology has advanced too far. Some doctors are even ignoring the images of the rest of the abdomen created by a CT colonography. They don't want to look, for fear of what they might find. At the same time, imaging-equipment manufacturers are creating higher-resolution scans, increasing even further the chances that something innocuous could be found.

Dr. G. Scott Gazelle, a radiologist at Massachusetts General Hospital who has a Ph.D. in health policy, points out that higher-resolution CT scans require more radiation. "We're starting to question how good the images need to be," he says. Efforts are under way at many hospitals to reduce radiation dosage, but this follows more than a decade of sharp increases. Radiation exposure is part of the reason the USPSTF says it cannot determine whether CT colonography causes more harm or benefit; it assigned the procedure an I rating for "insufficient evidence."

Incidentalomas have the potential to cause even more upheaval for people who undergo CT to screen for lung cancer. Gazelle says there's no doubt that these scans, while exposing patients to many times the radiation of a chest X-ray, can reduce lung-cancer mortality in smokers and former smokers. (A randomized trial to assess lung-cancer-screening CT is under way.) "The question is, At what cost? And by how much?" he says. In addition to the staggering expense of tracking down all the incidentalomas that are likely to be found—lungs are notoriously full of such strange-looking nodules—the physical risks are high. Three to five percent of people who undergo surgery to cut out pieces of their lungs die from the procedure. "Multiply that by the smokers and former smokers in the U.S. population and you could get tens of thousands of deaths," says Gazelle.

'If we had a 100% sensitive test, it's conceivable that most of us would be found to have cancer.'

—DR. BARNETT KRAMER, MEDICAL ONCOLOGIST

The "Fastest-Increasing" Cancers

IN 2010, ABOUT 45,000 AMERICANS WERE diagnosed with thyroid cancer. That's about three times the diagnosis rate in 1975. But the mortality rate for the disease was the same. There was no more thyroid cancer than before; doctors were just looking and finding more of it. This means that when it comes to lives saved, thyroid-cancer screening may be doing little or no good. In fact, it's probably mostly causing harm.

A recently launched public-awareness campaign called Check Your Neck identifies the disease as "the fastest-increasing cancer in the U.S." Doctors screen for thyroid cancer by palpating the neck, but most necks are lumpy, and it can be hard to tell by touch whether a thyroid is enlarged. Once there's uncertainty, the cascade can take over. Remarkably, many of us, possibly even most of us, will develop thyroid cancer at some point in our lives, but very few of us will die of it. In a 1985 study, researchers examined the bodies of 101 people who had died of causes other than thyroid cancer and found that a third of them contained cancerous thyroid cells. Because of the sampling method, the researchers knew that they were certainly missing some cases, meaning the percentage was even higher, and yet none of those people were killed by the disease.

Still, the vast majority of people in whom thyroid cancer is diagnosed undergo radiation treatment or have their thyroid removed. The surgery leaves some patients hoarse and all forever dependent on medication. Something similar is happening with melanoma, a skin malignancy that kills about 9,000 Americans every year. Awareness campaigns like Melanoma Monday, sponsored by the American Academy of Dermatology, helped raise the melanoma-diagnosis rate 30% from 1975 to 2007. The mortality rate? Unchanged.

The Business of Screening

AMONG ALL THE REASONS OVERSCREENing is taking place, the least discussed—and most disturbing—is money. Back in the 1990s, when Brawley, now of the ACS, was an assistant director of the National Cancer Institute, he visited a large research hospital in Atlanta. There, a marketing expert explained that providing free PSA tests to 1,000 men at a local mall could lead to millions of dollars in subsequent revenue for the hospital. The income would come from biopsies, surgeries, radiation and even urinary-sphincter implants in men who experienced complications. This kind of strategy is common, according to Brawley.

Some health centers and urology practices use giveaways to entice men to get PSA tests. In recent years, men have scooped up tickets to Atlanta Hawks, Buffalo Sabres and Tampa Bay Rays games in exchange for getting tested. A nonprofit national organization called Zero, for "zero prostate cancer," tries to get the word out about the benefits of PSA testing, parking a mobile testing unit outside sporting events and churches. The organization doesn't charge patients for tests but accepts donations from urologists, Big Pharma and Beckman Coulter, a PSA-test manufacturer.

The downstream costs of cancer-screening campaigns like this are enormous. Says Welch: "It may lower costs for an individual patient" if minor surgery to remove a suspicious early growth makes major, long-term cancer treatment unnecessary, "but because there are so many more patients created, that effect is overwhelmed." Doctors sometimes encourage screening in part because they believe it could protect them from liability. In addition, the new Affordable Care Act requires insurers to cover "preventive services" at full cost, meaning most patients will pay nothing out of pocket for procedures like mammograms, PSA tests and colonoscopies. This could drive up screening rates even further.

Welch and Handley are urging change upstream. According to a meta-analysis published in 2009, patients are 20% less likely to undergo PSA testing once they understand the potential harms, benefits and uncertainties of it. The VA offers male patients over 50 a DVD and a booklet titled *Is a PSA Test Right for You?* The material contains the statement "If you find out you have prostate cancer later in life, you will most likely die with the cancer, but probably not because of it."

Advanced screening methods are putting more of us in a similar situation. Many more of us are finding out we have cancer. But even if we can survive cancer, can we live with it? Says Kramer, formerly of the NIH: "The term *cancer* is so fearsome, many people can't accept the concept that you don't do anything about it." Combine that fear with the American medical system's seemingly limitless capacity for testing and intervention, and excess is inevitable.

"In the U.S. in particular, we just feel like more is always better," says Diana Miglioretti, a biostatistician and investigator for Group Health who studies cancer screening. "There is an uncomfortableness with ambiguity, so we're always looking for that perfect test to save a life." ■

Photograph by Max Aguilera-Hellweg for TIME

The circle marks the spot
A scientist prepares to remove a small bit of tumor tissue—marked by the blue circle—from a biopsy sample for DNA sequencing

Cracking Cancer's Code

Tumor DNA holds the key to beating the disease

BY ALICE PARK

IT SEEMS JARRING AT FIRST, ALL THAT VIOLENT imagery we use when we talk about cancer. It was 40 years ago, with the National Cancer Act of 1971, that President Nixon launched the War on Cancer, and since then, we fight with knife and laser and radiation and chemical weapons, we target tumors, we run reconnaissance with scans and tests, and we hunt down wayward cells that sneak away from the original lesion to seed new growths elsewhere.

Until now, all the aggressive posturing was intentional and, some would argue, necessary in order to engage a disease as insidious as this. Once a healthy cell picks up signals to grow, grow, grow, it indeed becomes a biological enemy, one that left unchecked can infiltrate, overtake and ultimately shut down normal tissues and organs.

Yet while we have focused so obsessively on cutting out tumors or poisoning them with toxic drugs, we have forgotten that there is another strategy, one that takes a more sophisticated approach than carpet bombing the enemy and instead requires studying it up close, learning its ways and weaknesses and then letting that knowledge work for you.

This is the strategy luring more and more researchers into the next phase of cancer care, one in which the science of genes is applied to the biology of cancer,

allowing us to peer deep into the clockwork of a cancer cell and then jam its gears or pull out its mainspring. It means that treating cancer may be not an all-or-nothing endeavor but rather a long-term crusade between tumor and therapy, similar to the way we handle chronic diseases like HIV and other infections—with combinations of drugs in a constantly evolving fashion. Such an approach could be far more precise than the scalpels-and-toxins strategy, but it requires us to do one very big thing: learn to read cancer's DNA.

Cancer genomics represents a relatively simple but powerful idea: that the tumor until now has been a forgotten player—dismissed, in part because it was destined to be eliminated anyway, but more out of ignorance, because scientists simply couldn't suss out its secrets. Turning cancer's DNA against it requires you to understand the malignant cell's likes and dislikes, the biological and molecular enablers that keep it alive at the expense of healthy cells around it. What's more, targeting tumors isn't as easy as drawing a clear line between friend and foe. By its very nature, cancer is a perverted version of what's normal, a case of our cells going rogue. A malignancy is indeed a biological adversary, but it didn't start out that way. In the beginning, every cancer is nothing more than a group of healthy cells that for a variety of reasons—an inherited genetic anomaly, tobacco exposure, too many ultraviolet rays from the sun—turns against us. Finding out why this happens calls for more knowledge about genetic science than we have had in decades past. And just as important, you have to appreciate that all of those factors can be different for every different kind of cancer—or even every different patient. Only then can you hope to conquer the disease from the inside out.

"We like to call it a disruptive technology," says Dr. Matthew Ellis, professor of medicine at Washington University in St. Louis and a leader in sequencing the DNA of cancer cells. "Once we translate this technology into the clinical setting, it will completely rewrite the textbook on cancer, because we can start to fundamentally understand each patient's cancer genome and design treatments to match that genomic information."

A New Look at an Old Idea

REVOLUTIONARY AS CANCER GENOMICS sounds, the goal of decoding a tumor's DNA isn't new. As far back as the 1960s, enterprising scientists identified an oddity in the size of one of the 23 pairs of chromosomes, the ropelike bundles in which DNA packages itself in cells. It is still known as the Philadelphia chromosome, a hallmark for

Decoding Cancer. DNA from lung tumors is an especially powerful tool for treatment. Here's how it helps

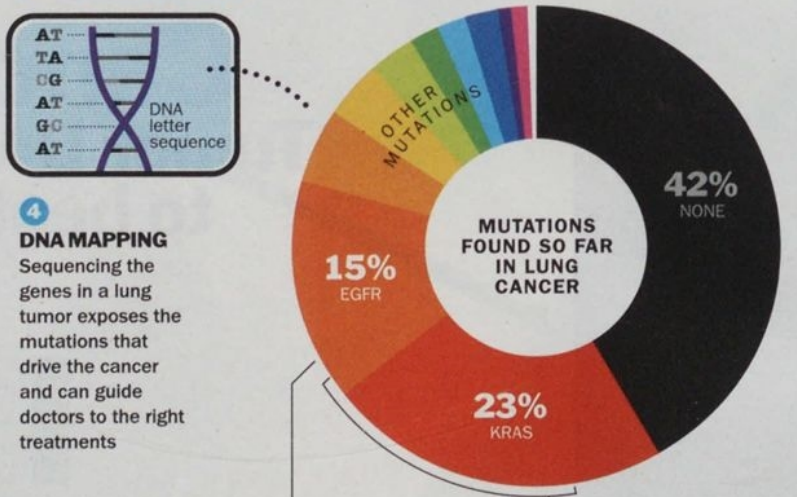
Current therapy

1 BIOPSY
Doctors remove a small portion of tumor tissue from the lung to look for tumor cells

2 DIAGNOSIS
Pathologists study the cells under a microscope and look for telltale signs of malignant and abnormally growing cells

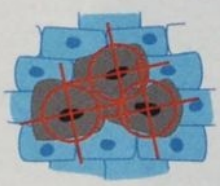
3 TREATMENT
If cancer cells are present, patients undergo surgery to remove tumors and chemotherapy and radiation to mop up any remaining cancer

DNA-based therapy



4 DNA MAPPING
Sequencing the genes in a lung tumor exposes the mutations that drive the cancer and can guide doctors to the right treatments

5 EGFR TUMORS
Drugs that inhibit activity of the epidermal-growth-factor receptor can shrink lung tumors that have aberrations in this gene



6 COMBO CANCER
If tumors have mutations in both EGFR and the KRAS gene (which regulates growth), however, they do not respond to EGFR inhibitor drugs, so chemo is a better option

7 MONITORING
Cancer patients will likely have tumor cells mapped periodically to keep track of new growths and resistance to chemotherapy

identifying chronic myeloid leukemia. The problem with analyzing a tumor's DNA, however, has always been one of resolution. If the physical structure of a chromosome looks different in tumor cells, then there certainly must be changes in the genes packed inside. But how do you decipher the genetic instructions tucked so deeply away? How do you keep up with the uncanny power those genes give a cancer cell to sidestep drugs and find new ways to flourish?

The answer started to emerge in 2001 with the mapping of the human genome and its more than 30,000 genes. That biological blueprint serves as the key to answering all sorts of questions about the human condition—especially how normal development is supposed to proceed and where disease intrudes to alter that path.

Could the same be true of a tumor's genetic map? Could sequencing a cancer cell's genome expose its very operating system? Although Dr. Francis Collins, comapper of the human genome, was convinced that it could, it took until 2007, after refinement of the techniques and lowering of the cost associated with the process, for the National Institutes of Health to finally be able to begin sequencing cancer cells in a serious way. The mission of the Cancer Genome Atlas (TCGA) is to sequence dozens of cancers, with about 500 samples of each, by 2014. With "the Human Genome Project, the aim was to provide a catalog of the genes in the human genome. TCGA is building a catalog of the things that go wrong in cancer," says Paul Spellman of the National Cancer Institute.

Those things can range from an overactive gene to a complete swapping of DNA from one chromosome to another. "The cardinal feature of a cancer cell is that it's lost the identity it was born with," says Dr. Ernest Hawk, head of the division of cancer prevention and population sciences at MD Anderson Cancer Center in Houston. "It simply doesn't live a normal life and then die as normal cells do."

Researchers already had some limited experience in isolating and explaining the workings of cancer genes. The specific mutations linked to breast cancer in the BRCA 1 and BRCA 2 genes as well as alterations in a gene called APC, which normally suppresses tumor growth and is linked to colon cancer, are behind anywhere from 5% to a third of these diseases. But these are inherited aberrations, and cancers are triggered not only by the genes we get from our parents but also by corruptions to our genome that we acquire in our daily lives—from smoking, sun and diet as well as simple aging. "What has happened in cancer care over the past 20 years has been very piecemeal and ad hoc," says Dr. Todd Golub, director of the cancer program at the Broad Institute. "We discovered some cancer-causing genes here and there, often by stumbling across them. But the notion of being able to say that we are going to systematically and comprehensively interrogate the cancer genome has never been possible before."

Now, he says, improvements in the speed and precision of gene-sequencing technology are making broader sequencing of tumors more realistic. In 2001 the Human Genome Project produced one entire sequence of the human genome at a cost of $1 billion; today it's possible to map a cancer cell's genome for about $5,000, and it won't be long before that will dip to $1,000. In fact, it may soon cost more to store and analyze the data extracted from tumor genomes than it will to generate the maps.

Any cost may well prove worthwhile, however, since even the first slivers of information from cancer genotyping are proving tantalizing. In the first large-scale sequencing of a cancer, using 38 tumors from patients with multiple myeloma, for example, Golub and his team found that this rare blood cancer shared with melanoma a genetic abnormality that causes cells to grow too fast. And that turned out to be a potentially lifesaving piece of information for multiple myeloma patients, since melanoma is already being treated with a drug that targets this aberrant gene.

That's just the first and easiest example of how clinicians and pharmaceutical companies will start exploiting their newfound genetic knowledge with trials of other existing drugs to treat new cancers. The multiple myeloma genome also highlighted several genes that no scientist had ever even described before in the literature, which could become targets for entirely new classes of drugs.

Ellis and his team have sketched out a similar map of one type of breast cancer—tumors that are positive for receptors of the hormone estrogen. Like Golub and researchers at TCGA, they are beginning to see patterns in the genetic triggers of cancer. They suspect, for example, that cancer is not a disease of blockbuster mutations, in which a majority of patients with a particular cancer share aberrations in one or even a few genes. Instead, it's likely that each type of cancer may have a few "driver" mutations and a host of "passenger" changes that appear at a very low frequency. The good news is that both suites of aberrations tend to funnel into a common molecular trunk, like the branches of a tree, and it's that trunk of processes that can become a powerful target for new treatments.

'We expect that 10 years from now, each cancer patient is going to want to get a genomic analysis of their cancer.'

—BRAD OZENBERGER, DIRECTOR OF THE CANCER GENOME ATLAS

Eager to put genotyping into practice, doctors at MD Anderson and Massachusetts General Hospital, among others, have already begun using sequencing technology to guide treatment of patients in clinical trials. Even without the full genome map of certain cancers, clinicians are using known mutations linked to cancer to dictate which drugs patients receive. In MD Anderson's program, all lung-cancer patients are offered the chance to join a trial in which their tumors are genetically analyzed for some well-known genetic defects thought to play a role in cancer. About 15% of lung cancers, for example, show mutations in a gene that makes a protein critical for cell growth. Patients with this aberration can enroll in trials in which FDA-approved drugs targeting that mutation are being tested as a first-line therapy, instead of chemotherapy, for treating their disease, giving them a head start in gaining any benefits the drugs might provide. (At the moment, these drugs are approved only for patients with advanced cancer for whom other therapies have failed.)

Cancer experts aren't naive enough to believe that sequencing a tumor just once will reveal all they need to know. Cancer is constantly changing its offensive and defensive plans in response to whatever treatments doctors are using against it. The idea is to rebiopsy patients periodically and allow the dynamic genetic changes in the tumors to educate doctors about how aggressive the cancer is, whether it has developed resistance to drugs and even whether it has spread. "The concept is to let the tumor teach us how to treat patients," says Dr. Waun Ki Hong, head of cancer medicine at MD Anderson.

It's all part of the leap toward personalized cancer care, the therapeutic beacon toward which researchers and doctors have been navigating for a long time. "We fully expect that 10 years from now, each cancer patient is going to want to get a genomic analysis of their cancer and will expect customized therapy based on that information," says Brad Ozenberger, TCGA's program director. Only with more individualized therapies that match the right treatment with the right patient at the right time will the battle ultimately be won. ■

The Refuseniks

Why some cancer patients reject their doctor's advice

BY RUTH DAVIS KONIGSBERG

IT WAS THE KIND OF CASE YOU NEVER FORGET. Sean Ransom was a psychology intern at a cancer center in 2005 when he was sent a patient, a widow in her 80s, who had just been diagnosed with a treatable form of lung cancer. Her oncologist had recommended surgery and chemotherapy, but she had turned him down. "After interviewing her, it seemed that she had a kind of depression common in older patients—not really a lot of sadness but boredom and no real pleasure in life," says Ransom, who is now the director of the Friedler Center for Psychosocial Oncology at Tulane Cancer Center.

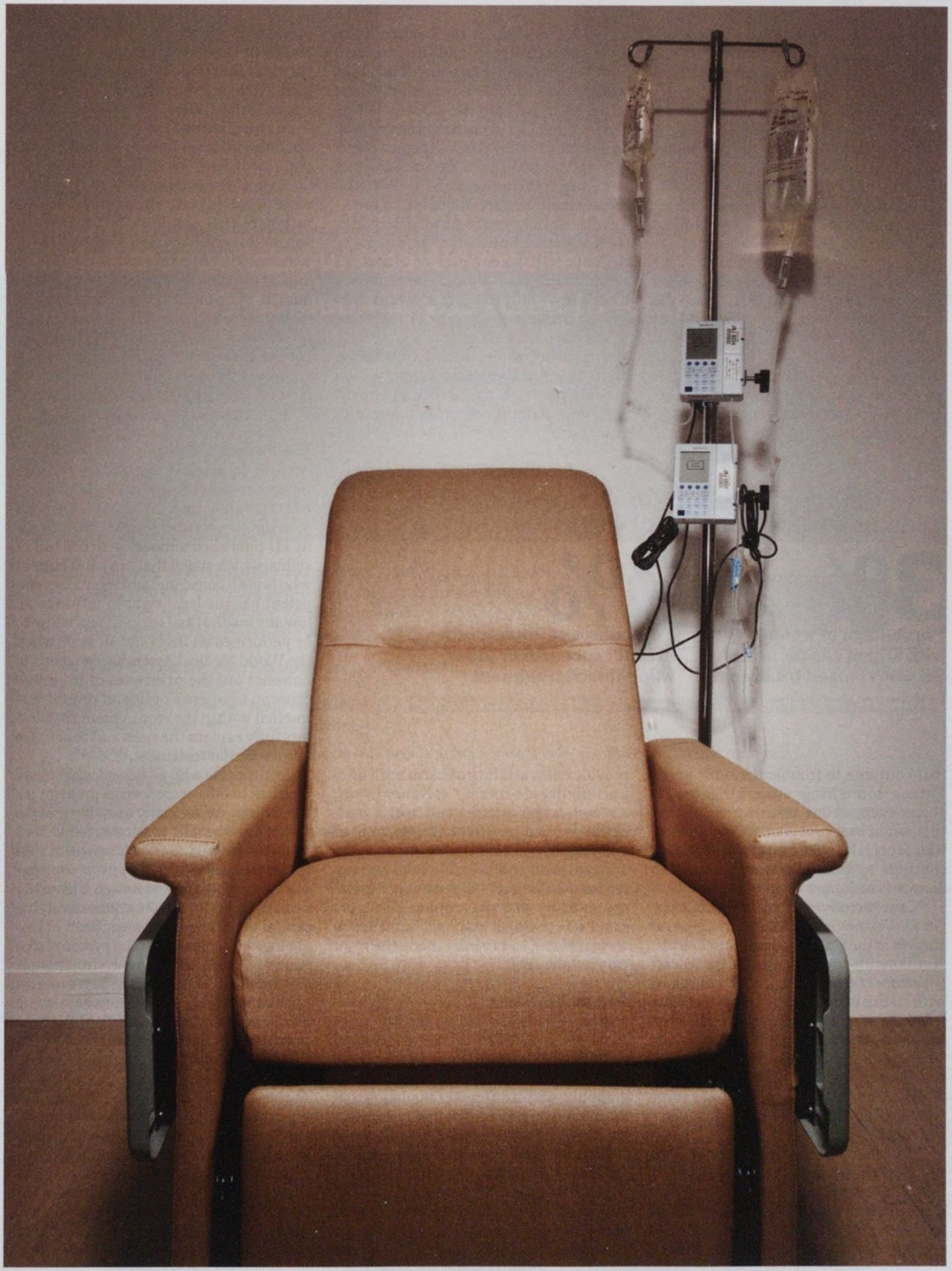
The patient didn't believe she was depressed but was curious enough to start taking antidepressants and go to a few counseling sessions just in case. After a month or so, she returned and said, "You were right. I must have been depressed, because I feel so much better now. Things are more enjoyable."

"So you've decided to get treatment," said Ransom.

"No. I still don't want treatment. I just thought you'd like to know that you were right about the depression."

Ransom was surprised, but the patient explained that she didn't want to go through the suffering of

Standing one's ground
Patients who decline chemotherapy are often fearful of the side effects



Photograph by Spencer Lowell for TIME

chemotherapy. He took her to the infusion center, and she agreed that it didn't look as bad as she had feared. But when Ransom again asked if she would get treatment, she still declined. "I'm alone. I've lived a good life, but I miss my husband," she said. "I'm happy with what my life has been. I don't want treatment." Ransom bade her farewell, thinking he would never see her again, but she returned at the end of his internship year, thinner and more wan but still resolute, to ask if he would speak to her daughter, who was struggling with her mother's decision. "That might have been the only glimpse of regret that I saw—she didn't like that her daughter was sad—but she never seemed to be ambivalent about her choice," he recalls.

In the research literature, they are but a footnote—the small minority who refuse or drop out of treatment. But to clinicians like Ransom, they are the cases that continue to trouble them for years. There's something unnerving, outrageous even, about refusing treatment that might beat cancer or at least prolong life, especially when so many patients continue to seek help even when their disease is no longer treatable.

"Cancer receives a special status," says Dr. Vic Velanovich, the director of general surgery at the University of South Florida. "Unlike with any other disease, the federal government declared a war on cancer, so with all this effort, how could you possibly refuse treatment?" And yet Velanovich has surveyed people who have done just that. "It's actually not that unusual," he says, "particularly in the older age group"—which accounts for the majority of cancer patients. "But it's certainly not just older patients either."

It is a phenomenon quite distinct from that of people who, in the last weeks of their life and generally in great pain, refuse food and water or otherwise show, to use the clinical term for it, a "desire for hastened death." Instead, treatment refusers are often at the beginning of their cancer journey, and the interventions they refuse are considered active in that they are intended to cure or control rather than palliate the disease. While stories about Christian Scientists relying on prayer or Jehovah's Witnesses refusing blood transfusions are the ones that wind up in the news, most people who refuse treatment are not doing so for religious reasons or even out of a deep mistrust of modern medicine. In fact, many patients will accept part of a doctor's recommendation—surgery to remove a tumor, say—only to reject adjuvant therapy such as chemotherapy or radiation that is often the next step.

For these people, the relevant fact is often that "unlike most drugs, which provide the high possibility of benefit with the possibility of harm, many anticancer drugs, especially chemotherapy, provide near certainty of harm with only a possibility of benefits," as Nancy Evans, a breast-cancer activist and health journalist, has put it. After being diagnosed at the age of 53, Evans underwent surgery and radiation and began to take tamoxifen but found that it wiped out her memory so badly that she stopped. "Doctors said I was taking a real risk, but it's now 20 years later, so I think I made the right choice," she says.

Hard Choices. Older patients are more likely to decide treatment is not worth it

3%
Percentage of women with breast cancer **under 65** who refused treatment

7%
Percentage of women with breast cancer **65 or older** who refused treatment

SOURCE: "CAUSES FOR THE UNDERTREATMENT OF ELDERLY BREAST CANCER PATIENTS: TAILORING TREATMENTS TO INDIVIDUAL PATIENTS," A STUDY OF A RANDOM SAMPLE OF 500 BREAST-CANCER PATIENTS, PUBLISHED IN THE *JOURNAL OF THE AMERICAN COLLEGE OF SURGEONS*

A Numbers Game

WHILE IT'S TEMPTING TO ARGUE THAT refusenik patients are allowing irrational fears about side effects to get in the way of medical deliberation, they may actually be grappling with a different calculation that too often gets ignored: The therapies might prolong life, but for how long, and at what cost? There have been no methodological studies—withholding treatment from a control group would be unethical—but one survey comparing almost 800 patients who refused all conventional cancer treatment with those who accepted treatment found that refusal shortened the median length of survival by nine months. The survey was extremely broad: subjects suffered from 30 kinds of cancer at varying stages of the disease, and survival ranged from two months to more than six years. But the point is, sometimes treatment buys you a lot of time. Sometimes it doesn't.

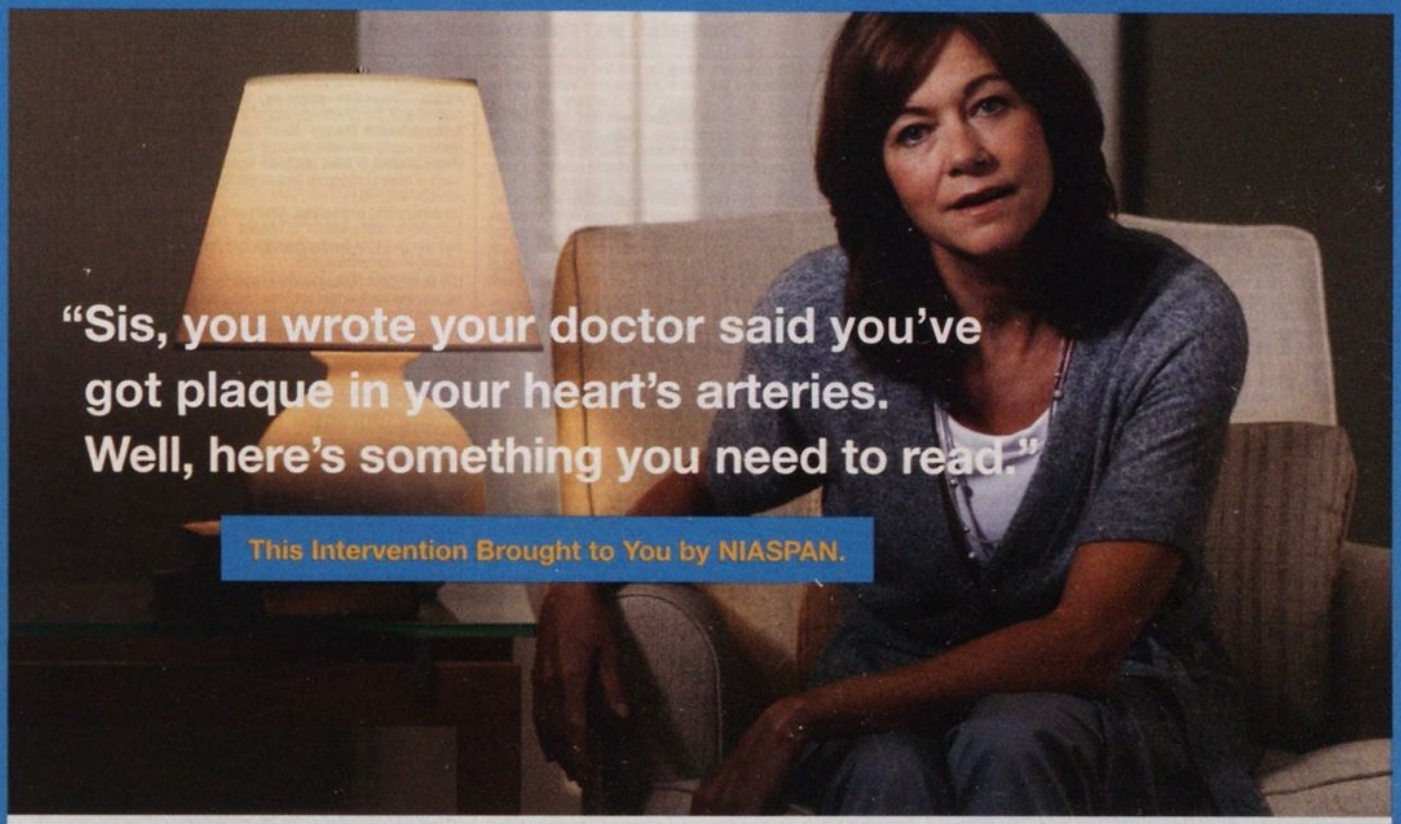
Even if the implications of the study were more precise than they are, the numbers still wouldn't tell the whole story. "Survival is easy to measure, but what we don't measure is how people live during the time they are alive," says Velanovich. "The bitter truth is that none of us knows when our last days are going to be. What you can control is how you choose to live during the time that you are alive." People who refuse treatment have in some ways already come to terms with this existential dilemma.

The Patient's Voice

IT USED TO BE THAT DOCTORS MADE THE treatment decisions and expected their patients to fall in line. That has all changed over the past several decades. In 1975 the ACLU published a model patient's bill of rights, which stated that "an adult patient who is both conscious and mentally competent has the legal right to refuse to allow any medical and surgical procedure to be performed on his body." In 1978, when the World Medical Assembly convened to hammer out the principles of informed consent, a patient's option of refusal was implicit within the requirement that doctors fully explain the risks and benefits of any particular treatment.

Still, people who eschewed what medicine had to offer were seen as problem patients or, worse, mentally unstable—in the grip of "false beliefs" that it was the doctor's unfortunate duty to try to change. In 1982 in the journal *Psychotherapy and Psychosomatics*, a psychiatrist at Brown University declared that "most situations involving refusal of treatment involve issues of psychological distortions, interpersonal dysfunction, medical systems dysfunction, or psychiatric disorder, such as depression or organic mental disorder." Nowhere was it considered that a rational patient might be making an informed choice.

It wasn't until 1990 that the Association of American Physicians & Surgeons adopted a list of freedoms that should be guaranteed to all patients that included the freedom "to refuse medical treatment even if it is recommended by their physician." It fell to the psychologists specializing in cancer treatment in the emerging field of psycho-oncology to try to make sense of why, and under what circumstances, a cancer patient would choose to



- If you have high cholesterol and coronary artery disease, NIASPAN, along with diet and a bile acid-binding resin (another cholesterol medicine), is FDA-approved not only to slow down plaque buildup, but to actually help clear some of it away.
- A low-fat diet and exercise alone may not be enough.

START FIGHTING PLAQUE.
ASK YOUR DOCTOR ABOUT NIASPAN.

High cholesterol is one risk factor that leads to plaque buildup. Other factors include: family history of early heart disease, high blood pressure, smoking, and diabetes.

NIASPAN, with a bile acid-binding resin, has not been shown to prevent heart disease, heart attacks, or stroke.

IMPORTANT SAFETY INFORMATION

■ Prescription NIASPAN should not be taken by people with stomach ulcers, liver or serious bleeding problems. ■ **Severe liver damage can occur when switching to a long-acting niacin, such as NIASPAN, from immediate-release niacin.** ■ Blood tests are needed before and during treatment with NIASPAN to check for liver problems. ■ Contact a health care provider if serious side effects such as unexplained muscle pain, tenderness, or weakness develop. The risk of these side effects may be higher when taking NIASPAN with a statin. ■ Tell your health care provider if you have a history of gout, drink large amounts of alcohol, or if you are diabetic and experience increases in blood sugar. ■ The most common side effect of NIASPAN is flushing (warmth, redness, itching, and/or tingling of the skin).

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088 (1-800-332-1088).

If you cannot afford your medication, contact: www.pparx.org or call the toll-free number 1-888-4PPA-NOW (1-888-477-2669) for assistance.

Please see the next page for brief summary of full Prescribing Information.

COATED TABLETS
NIASPAN®
niacin EXTENDED-RELEASE TABLETS

Fight Back. Fight Plaque.

www.niaspan.com ■ 1-877-NIASPAN (1-877-642-7726) ■ Text NIASPAN2 to 80800 for more information*

*Message and data rates may apply.

NIASPAN® (niacin extended-release tablets)

PROFESSIONAL BRIEF SUMMARY CONSULT PACKAGE INSERT FOR FULL PRESCRIBING INFORMATION

INDICATIONS AND USAGE Therapy with lipid-altering agents should be only one component of multiple risk factor intervention in individuals at significantly increased risk for atherosclerotic vascular disease due to hyperlipidemia. Niacin therapy is indicated as an adjunct to diet when the response to a diet restricted in saturated fat and cholesterol and other nonpharmacologic measures alone has been inadequate.

1. NIASPAN is indicated to reduce elevated TC, LDL-C, Apo B and TG levels, and to increase HDL-C in patients with primary hyperlipidemia and mixed dyslipidemia.
2. NIASPAN in combination with simvastatin or lovastatin is indicated for the treatment of primary hyperlipidemia and mixed dyslipidemia when treatment with NIASPAN, simvastatin, or lovastatin monotherapy is considered inadequate.
3. In patients with a history of myocardial infarction and hyperlipidemia, niacin is indicated to reduce the risk of recurrent nonfatal myocardial infarction.
4. In patients with a history of coronary artery disease (CAD) and hyperlipidemia, niacin, in combination with a bile acid binding resin, is indicated to slow progression or promote regression of atherosclerotic disease.

Limitations of Use No incremental benefit of NIASPAN coadministered with simvastatin or lovastatin on cardiovascular morbidity and mortality over and above that demonstrated for niacin, simvastatin, or lovastatin monotherapy has been established.

CONTRAINDICATIONS NIASPAN is contraindicated in the following conditions: • Active liver disease or unexplained persistent elevations in hepatic transaminases *[see Warnings and Precautions]* • Patients with active peptic ulcer disease • Patients with arterial bleeding • Hypersensitivity to niacin or any component of this medication *[see Adverse Reactions]*

WARNINGS AND PRECAUTIONS NIASPAN preparations should not be substituted for equivalent doses of immediate-release (crystalline) niacin. For patients switching from immediate-release niacin to NIASPAN, therapy with NIASPAN should be initiated with low doses (i.e., 500 mg at bedtime) and the NIASPAN dose should then be titrated to the desired therapeutic response.

Caution should also be used when NIASPAN is used in patients with unstable angina or in the acute phase of an MI, particularly when such patients are also receiving vasoactive drugs such as nitrates, calcium channel blockers, or adrenergic blocking agents.

Niacin is rapidly metabolized by the liver, and excreted through the kidneys. NIASPAN is contraindicated in patients with significant or unexplained hepatic impairment *[see Contraindications and Warnings and Precautions]* and should be used with caution in patients with renal impairment. Patients with a past history of jaundice, hepatobiliary disease, or peptic ulcer should be observed closely during NIASPAN therapy.

Skeletal Muscle Cases of rhabdomyolysis have been associated with concomitant administration of lipid-altering doses (≥1 g/day) of niacin and statins. Physicians contemplating combined therapy with statins and NIASPAN should carefully weigh the potential benefits and risks and should carefully monitor patients for any signs and symptoms of muscle pain, tenderness, or weakness, particularly during the initial months of therapy and during any periods of upward dosage titration of either drug. Periodic serum creatine phosphokinase (CPK) and potassium determinations should be considered in such situations, but there is no assurance that such monitoring will prevent the occurrence of severe myopathy.

The risk for myopathy and rhabdomyolysis are increased when lovastatin or simvastatin are coadministered with NIASPAN, particularly in elderly patients and patients with diabetes, renal failure, or uncontrolled hypothyroidism.

Liver Dysfunction Cases of severe hepatic toxicity, including fulminant hepatic necrosis, have occurred in patients who have substituted sustained-release (modified-release, timed-release) niacin products for immediate-release (crystalline) niacin at equivalent doses.

NIASPAN should be used with caution in patients who consume substantial quantities of alcohol and/or have a past history of liver disease. Active liver diseases or unexplained transaminase elevations are contraindications to the use of NIASPAN.

Niacin preparations have been associated with abnormal liver tests. In three placebo-controlled clinical trials involving titration to final daily NIASPAN doses ranging from 500 to 3000 mg, 245 patients received NIASPAN for a mean duration of 17 weeks. No patient with normal serum transaminase levels (AST, ALT) at baseline experienced elevations to more than 3 times the upper limit of normal (ULN) during treatment with NIASPAN. In these studies, fewer than 1% (2/245) of NIASPAN patients discontinued due to transaminase elevations greater than 2 times the ULN.

In three safety and efficacy studies with a combination tablet of NIASPAN and lovastatin involving titration to final daily doses (expressed as mg of niacin/ mg of lovastatin) 500 mg/10 mg to 2500 mg/40 mg, ten of 1028 patients (1.0%) experienced reversible elevations in AST/ALT to more than 3 times the ULN. Three of ten elevations occurred at doses outside the recommended dosing limit of 2000 mg/40 mg; no patient receiving 1000 mg/20 mg had 3-fold elevations in AST/ALT.

Niacin extended-release and simvastatin can cause abnormal liver tests. In a simvastatin-controlled, 24 week study with a fixed dose combination of NIASPAN and simvastatin in 641 patients, there were no persistent increases (more than 3x the ULN) in serum transaminases. In three placebo-controlled clinical studies of extended-release niacin there were no patients with normal serum transaminase levels at baseline who experienced elevations to more than 3x the ULN. Persistent increases (more than 3x the ULN) in serum transaminases have occurred in approximately 1% of patients who received simvastatin in clinical studies. When drug treatment was interrupted or discontinued in these patients, the transaminases levels usually fell slowly to pretreatment levels. The increases were not associated with jaundice or other clinical signs or symptoms. There was no evidence of hypersensitivity.

In the placebo-controlled clinical trials and the long-term extension study, elevations in transaminases did not appear to be related to treatment duration; elevations in AST levels did appear to be dose related. Transaminase elevations were reversible upon discontinuation of NIASPAN.

Liver function tests should be performed on all patients during therapy with NIASPAN. Serum transaminase levels, including AST and ALT (SGOT and SGPT), should be monitored before treatment begins, every 6 to 12 weeks for the first year, and periodically thereafter (e.g., at approximately 6-month intervals). Special attention should be paid to patients who develop elevated serum transaminase levels, and in these patients, measurements should be repeated promptly and then performed more frequently. If the transaminase levels show evidence of progression, particularly if they rise to 3 times ULN and are persistent, or if they are associated with symptoms of nausea, fever, and/or malaise, the drug should be discontinued.

Laboratory Abnormalities *Increase in Blood Glucose:* Niacin treatment can increase fasting blood glucose. Frequent monitoring of blood glucose should be performed to ascertain that the drug is producing no adverse effects. Diabetic patients may experience a dose-related increase in glucose intolerance. Diabetic or potentially diabetic patients should be observed closely during treatment with NIASPAN, particularly during the first few months of use or dose adjustment; adjustment of diet and/or hypoglycemic therapy may be necessary.

Reduction in platelet count: NIASPAN has been associated with small but statistically significant dose-related reductions in platelet count (mean of -11% with 2000 mg). Caution should be observed when NIASPAN is administered concomitantly with anticoagulants; platelet counts should be monitored closely in such patients.

Increase in Prothrombin Time (PT): NIASPAN has been associated with small but statistically significant increases in prothrombin time (mean of approximately +4%); accordingly, patients undergoing surgery should be carefully evaluated. Caution should be observed when NIASPAN is administered concomitantly with anticoagulants; prothrombin time should be monitored closely in such patients.

Increase in Uric Acid: Elevated uric acid levels have occurred with niacin therapy, therefore use with caution in patients predisposed to gout.

Decrease in Phosphorus: In placebo-controlled trials, NIASPAN has been associated with small but statistically significant, dose-related reductions in phosphorus levels (mean of -13% with 2000 mg). Although these reductions were transient, phosphorus levels should be monitored periodically in patients at risk for hypophosphatemia.

ADVERSE REACTIONS Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in the clinical studies of a drug cannot be directly compared to rates in the clinical studies of another drug and may not reflect the rates observed in practice.

Clinical Studies Experience In the placebo-controlled clinical trials database of 402 patients (age range 21-75 years, 33% women, 89% Caucasians, 7% Blacks, 3% Hispanics, 1% Asians) with a median treatment duration of 16 weeks, 16% of patients on NIASPAN and 4% of patients on placebo discontinued due to adverse reactions. The most common adverse reactions in the group of patients treated with NIASPAN that led to treatment discontinuation and occurred at a rate greater than placebo were flushing (6% vs. 0%), rash (2% vs. 0%), diarrhea (2% vs. 0%), nausea (1% vs. 0%), and vomiting (1% vs. 0%). The most commonly reported adverse reactions (incidence >5% and greater than placebo) in the NIASPAN controlled clinical trial database of 402 patients were flushing, diarrhea, nausea, vomiting, increased cough and pruritus.

In the placebo-controlled clinical trials, flushing episodes (i.e., warmth, redness, itching and/or tingling) were the most common treatment-emergent adverse reactions (reported by as many as 88% of patients) for NIASPAN. Spontaneous reports suggest that flushing may also be accompanied by symptoms of dizziness, tachycardia, palpitations, shortness of breath, sweating, burning sensation/skin burning sensation, chills, and/or edema, which in rare cases may lead to syncope. In pivotal studies, 6% (14/245) of NIASPAN patients discontinued due to flushing. In comparisons of immediate-release (IR) niacin and NIASPAN, although the proportion of patients who flushed was similar, fewer flushing episodes were reported by patients who received NIASPAN. Following 4 weeks of maintenance therapy at daily doses of 1500 mg, the incidence of flushing over the 4-week period averaged 8.6 events per patient for IR niacin versus 1.9 following NIASPAN.

Other adverse reactions occurring in ≥5% of patients treated with NIASPAN and at an incidence greater than placebo are shown in Table 1 below.

Table 1. Treatment-Emergent Adverse Reactions by Dose Level in ≥ 5% of Patients and at an Incidence Greater than Placebo; Regardless of Causality Assessment in Placebo-Controlled Clinical Trials

	Placebo-Controlled Studies NIASPAN Treatment[@]				
		Recommended Daily Maintenance Doses[†]			
	Placebo (n = 157) %	500 mg[‡] (n = 87) %	1000 mg (n = 110) %	1500 mg (n = 136) %	2000 mg (n = 95) %
Gastrointestinal Disorders					
Diarrhea	13	7	10	10	14
Nausea	7	5	6	4	11
Vomiting	4	0	2	4	9
Respiratory					
Cough, Increased	6	3	2	< 2	8
Skin and Subcutaneous Tissue Disorders					
Pruritus	2	8	0	3	0
Rash	0	5	5	5	0
Vascular Disorders					
Flushing[&]	19	68	69	63	55

Note: Percentages are calculated from the total number of patients in each column.

† Adverse reactions are reported at the initial dose where they occur.

@ Pooled results from placebo-controlled studies; for NIASPAN, n = 245 and median treatment duration = 16 weeks. Number of NIASPAN patients (n) are not additive across doses.

‡ The 500 mg/day dose is outside the recommended daily maintenance dosing range.

& 10 patients discontinued before receiving 500 mg, therefore they were not included.

In general, the incidence of adverse events was higher in women compared to men.

Postmarketing Experience Because the below reactions are reported voluntarily from a population of uncertain size, it is generally not possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

The following additional adverse reactions have been identified during post-approval use of NIASPAN:

Hypersensitivity reactions, including anaphylaxis, angioedema, urticaria, flushing, dyspnea, tongue edema, larynx edema, face edema, peripheral edema, laryngismus, and vesiculobullous rash; maculopapular rash; dry skin; tachycardia; palpitations; atrial fibrillation; other cardiac arrhythmias; syncope; hypotension; postural hypotension; blurred vision; macular edema; peptic ulcers; eructation; flatulence; hepatitis; jaundice; decreased glucose tolerance; gout; myalgia; myopathy; dizziness; insomnia; asthenia; nervousness; paresthesia; dyspnea; sweating; burning sensation/skin burning sensation; skin discoloration, and migraine.

Clinical Laboratory Abnormalities Chemistry: Elevations in serum transaminases *[see Warnings and Precautions]*, LDH, fasting glucose, uric acid, total bilirubin, amylase and creatine kinase, and reduction in phosphorus.

Hematology: Slight reductions in platelet counts and prolongation in prothrombin time *[see Warnings and Precautions]*.

DRUG INTERACTIONS Statins Caution should be used when prescribing niacin (≥1 gm/day) with statins as these drugs can increase risk of myopathy/ rhabdomyolysis. Combination therapy with NIASPAN and lovastatin or NIASPAN and simvastatin should not exceed doses of 2000 mg NIASPAN and 40 mg lovastatin or simvastatin daily. *[see Warnings and Precautions]*.

Bile Acid Sequestrants An *in vitro* study results suggest that the bile acid-binding resins have high niacin binding capacity. Therefore, 4 to 6 hours, or as great an interval as possible, should elapse between the ingestion of bile acid-binding resins and the administration of NIASPAN.

Aspirin Concomitant aspirin may decrease the metabolic clearance of nicotinic acid. The clinical relevance of this finding is unclear.

Antihypertensive Therapy Niacin may potentiate the effects of ganglionic blocking agents and vasoactive drugs resulting in postural hypotension.

Other Vitamins or other nutritional supplements containing large doses of niacin or related compounds such as nicotinamide may potentiate the adverse effects of NIASPAN.

Laboratory Test Interactions Niacin may produce false elevations in some fluorometric determinations of plasma or urinary catecholamines. Niacin may also give false-positive reactions with cupric sulfate solution (Benedict's reagent) in urine glucose tests.

USE IN SPECIFIC POPULATIONS Pregnancy Pregnancy Category C. Animal reproduction studies have not been conducted with niacin or with NIASPAN. It is also not known whether niacin at doses typically used for lipid disorders can cause fetal harm when administered to pregnant women or whether it can affect reproductive capacity. If a woman receiving niacin for primary hyperlipidemia becomes pregnant, the drug should be discontinued. If a woman being treated with niacin for hypertriglyceridemia conceives, the benefits and risks of continued therapy should be assessed on an individual basis.

All statins are contraindicated in pregnant and nursing women. When NIASPAN is administered with a statin in a woman of childbearing potential, refer to the pregnancy category and product labeling for the statin.

Nursing Mothers Niacin is excreted into human milk but the actual infant dose or infant dose as a percent of the maternal dose is not known. Because of the potential for serious adverse reactions in nursing infants from lipid-altering doses of nicotinic acid, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother. No studies have been conducted with NIASPAN in nursing mothers.

Pediatric Use Safety and effectiveness of niacin therapy in pediatric patients (≤16 years) have not been established.

Geriatric Use Of 979 patients in clinical studies of NIASPAN, 21% of the patients were age 65 and over. No overall differences in safety and effectiveness were observed between these patients and younger patients, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out.

Renal Impairment No studies have been performed in this population. NIASPAN should be used with caution in patients with renal impairment *[see Warnings and Precautions]*.

Hepatic Impairment No studies have been performed in this population. NIASPAN should be used with caution in patients with a past history of liver disease and/or who consume substantial quantities of alcohol. Active liver disease, unexplained transaminase elevations and significant or unexplained hepatic dysfunction are contraindications to the use of NIASPAN *[see Contraindications and Warnings and Precautions]*.

Gender Data from the clinical trials suggest that women have a greater hypolipidemic response than men at equivalent doses of NIASPAN.

OVERDOSAGE Supportive measures should be undertaken in the event of an overdose.

PATIENT COUNSELING INFORMATION Patient Counseling Patients should be advised to adhere to their National Cholesterol Education Program (NCEP) recommended diet, a regular exercise program, and periodic testing of a fasting lipid panel.

Patients should be advised to inform other healthcare professionals prescribing a new medication that they are taking NIASPAN.

The patient should be informed of the following:

Dosing Time NIASPAN tablets should be taken at bedtime, after a low-fat snack. Administration on an empty stomach is not recommended.

Tablet Integrity NIASPAN tablets should not be broken, crushed or chewed, but should be swallowed whole.

Dosing Interruption If dosing is interrupted for any length of time, their physician should be contacted prior to restarting therapy; re-titration is recommended.

Muscle Pain Notify their physician of any unexplained muscle pain, tenderness, or weakness promptly. They should discuss all medication, both prescription and over the counter, with their physician.

Flushing Flushing (warmth, redness, itching and/or tingling of the skin) is a common side effect of niacin therapy that may subside after several weeks of consistent NIASPAN use. Flushing may vary in severity and is more likely to occur with initiation of therapy, or during dose increases. By dosing at bedtime, flushing will most likely occur during sleep. However, if awakened by flushing at night, the patient should get up slowly, especially if feeling dizzy, feeling faint, or taking blood pressure medications. Advise patients of the symptoms of flushing and how they differ from the symptoms of a myocardial infarction.

Use of Aspirin Medication Taking aspirin (up to the recommended dose of 325 mg) approximately 30 minutes before dosing can minimize flushing.

Diet Avoid ingestion of alcohol, hot beverages and spicy foods around the time of taking NIASPAN to minimize flushing.

Supplements Notify their physician if they are taking vitamins or other nutritional supplements containing niacin or nicotinamide.

Dizziness Notify their physician if symptoms of dizziness occur.

Diabetics If diabetic, to notify their physician of changes in blood glucose.

Pregnancy Discuss future pregnancy plans with your patients, and discuss when to stop NIASPAN if they are trying to conceive. Patients should be advised that if they become pregnant, they should stop taking NIASPAN and call their healthcare professional.

Breastfeeding Women who are breastfeeding should be advised to not use NIASPAN. Patients, who have a lipid disorder and are breastfeeding, should be advised to discuss the options with their healthcare professional.

Manufactured for Abbott Laboratories, North Chicago, IL 60064, U.S.A.
500 mg tablets
by Norwich Pharmaceuticals, Inc., Norwich, NY 13815
or
500 mg, 750 mg and 1000 mg tablets
by Abbott Pharmaceuticals PR Ltd., Barceloneta, PR 00617
Ref. 03-A432-Revised December, 2010

303-525002 **MASTER**

303-518625

Abbott

exercise that newly defined right. What they have found has contradicted the stereotypes of uninformed, irrational and suicidal patients.

"They made quite deliberate and usually clearly reasoned decisions," says Irena Madjar of the University of Auckland, who conducted a survey of such patients that was published in 2005 in the *European Journal of Palliative Care*. "We found them to be intelligent, quite articulate and fully aware of the possible consequences of their decisions. They are not a minuscule fringe group, but they need to be better understood and given more appropriate care."

One thing Madjar and others like her are beginning to understand is that refuseniks don't use medical evidence as the only or even the main factor in their decisionmaking, although they report collecting lots of research about proposed treatments. But they then go further, making choices that are more reflective of their values, like the belief that the meaning of life is greatly diminished when the ability to live it normally is compromised. They don't want to live as long as possible if that means a loss of bodily integrity and personal agency and a heavy dependence on others. Sometimes they rely on the personal experiences of friends who underwent similar treatments. They believe in the benevolence of the doctor's intentions and often in the doctor's skill as well, but in the end, they choose a route that they think will give them a better sense of control, quality of life and dignity.

Reasons Patients Refuse:

I do not want to be ill from treatment.
I do not want to be used as a guinea pig.
I do not want to fight anymore.
I do not want to lose a breast.
I do not want to lose hair.
I do not want to spend valuable time in a hospital.
I have a lot to cope with. I want to take time to do that.
I have already reached old age.
I have fear of treatment.
I want to stay in control.
I have accepted death.

SOURCE: "PHYSICIANS' EVALUATIONS OF PATIENTS' DECISIONS TO REFUSE ONCOLOGICAL TREATMENT," *JOURNAL OF MEDICAL ETHICS*, 2005

Care by Other Means

WHILE PERSONALITY IS A BIG FACTOR IN declining care, other variables particular to the type of cancer or the demographics of the patient can play a role. Older women with breast cancer are more likely to decline surgery, chemotherapy or radiation, for example. In one survey of women with breast cancer, 7% of women 65 or older refused treatment, compared with 3% of women under 65. Men with prostate cancer often postpone surgery out of concern about adverse effects such as incontinence and impotence, and indeed, watchful waiting and monitoring PSA levels are sometimes a doctor-approved option. Usually, however, a patient is not given much time to deliberate, a complaint that's often cited by supporters of complementary and alternative medicine (CAM).

One study found that 14% of cancer patients who use CAM decline conventional treatment, but their reasons are different from other refusers'. Often, they have had a negative experience with mainstream medicine and have probably relied on CAM before, although not always to the exclusion of traditional care. "Sometimes they'll wind up going back to conventional treatment—and the majority actually use both, which is probably the best route—but we've interviewed people in later stages, and we have not heard a lot of regrets about the decisions they've made," says Marja Verhoef, a professor of complementary medicine at the University of Calgary. "I don't think they're much liked by oncologists, but they've really thought about what life means." (The NIH's Center for Complementary and Alternative Medicine cautions that CAM should never be used as a replacement for conventional care and that "at present, there is no convincing evidence regarding CAM use in preventing or curing cancer.")

Understandably, doctors find it hard to take when their treatment paradigm is challenged. "They will be very troubled by the patient's decision and will keep trying to get them to change their mind," says Madjar, who has interviewed oncologists about their experiences with patients who have forgone treatment. "Others will be concerned to cover themselves in case the patient or the family later decides to sue for inadequate care. Others take a very detached view and simply rationalize that, having given the options to the patient, they have no further responsibility."

A New Collaboration

IN AN IDEAL WORLD, INSTEAD OF DEBATing the merits of a particular treatment, a doctor would take the opportunity to initiate a different but equally important conversation about how patients want to live for however much time they have remaining. According to Holly Prigerson, director of the Center for Psycho-oncology and Palliative Care Research at the Dana-Farber Cancer Institute, who has done long-term surveys of how people cope with cancer, one big predictor for quality of life is the therapeutic alliance between doctor and patient. This is because a good relationship helps ensure that, even when patients forgo chemotherapy or radiation, they continue to have access to pain medication and other treatments that help keep them comfortable and functional.

Such palliative regimens are important for patients who are still pursuing treatment too. In a surprising study of people with advanced lung cancer, published in the *New England Journal of Medicine* last year, those who were given palliative care early in the course of their treatments not only reported a much higher quality of life and were much less depressed but also survived on average almost three months longer.

Reflecting on his patient, the widow who had responded to antidepressant medication but refused surgery and chemotherapy for her lung cancer, psychologist Sean Ransom now says, "At the time, it felt like a failure, but I would treat her much differently today than I did then. Sure, I'd assess for depression and try to help her feel like fighting, but I'd also ask her about her conceptualization of life beyond the bounds of mortality and how that might have factored into her choice to not have treatment. I'd ask what she thinks things will be like when she moves beyond this world, if she thinks she'll see her husband again and what that might be like for her. Perhaps then I'd really understand more about why she made the choice she made and what I needed to do to be of greatest service to her—regardless of what that service needed to be." ■

Check Your Charity!

There are too many lightweight nonprofits in cancer research

BY BILL SAPORITO

IT'S NOT THAT THE NATIONAL BREAST CANCER Research Center is a scam. It's more like a charity within a charity, run by an organization called the Walker Cancer Research Institute. The parent organization, based in Aberdeen, Md., dutifully files tax returns that show it raised $12.7 million in 2009 and spent 52% of it on fundraising. The return also reports that the organization spent exactly $487,505, or about 4% of its income, on research—most of it for probing plant life for anticancer compounds. Given that kind of research commitment, the group is unlikely to make significant advances anytime soon.

That said, Walker has a better chance of accomplishing something than the National Charity for Cancer Research, part of the Optimal Medical Foundation Inc. in Fremont, Calif. The group gathered $5.3 million in 2009, of which zero seems to have gone toward research. And don't confuse that with another Walker affiliate, called simply National Cancer Research Center, which uses the exact same fundraising letter as its California counterpart. Wonder what share of the $487,505 this branch gets to spend. "I shudder when I look at how many groups have 'cancer research' in their names," says Greg Simon, a board member and former head of FasterCures, a nonprofit focused on improving medical research. "The general public is throwing its money away."

Photographs by Jamie Chung for TIME

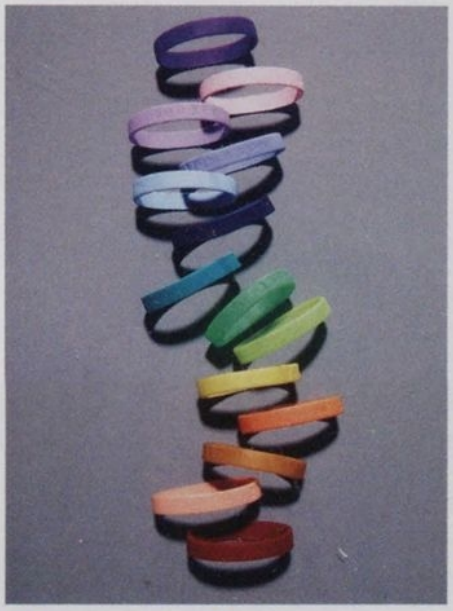

Born Better.®
Every drop of Deer Park® 100% Natural Spring Water comes from carefully selected natural springs. When you start with something better, you get something better.
DeerParkBornBetter.com
PURE QUALITY EST 1873
DEER PARK
100% NATURAL SPRING WATER
©2011 Nestlé Waters North America Inc.

That's why you may need to fire your cancer charity. Despite a terrible recession and its aftereffects, Americans will donate some $300 billion to charitable organizations this year, an avalanche of generosity that no other nation can match. If you've got a cause—poverty, veterans, ducks, the apocalypse—Americans will find a few nickels to spare. But when it comes to vicious diseases like cancer, we can be generous to a fault.

The cost of badly managed cancer charities isn't just wasted money. People are dying while these outfits mishandle funds that could go toward care. Search the word *cancer* in GuideStar, a database of nonprofits, and 7,747 names show up.

Traditional charities become focused on what they do—fundraising or attracting high-profile board members—rather than how they do. Many charities get started to memorialize loved ones, say, but never reach critical mass. "About 90% of nonprofits never make it over the $1 million mark," says Kathy Giusti, a former Big Pharma exec and cancer survivor who co-founded the Multiple Myeloma Research Foundation (MMRF). "It really gets hard to develop new ideas." Giusti's organization, which has brought a number of drugs to market in a short period of time using a venture-capital model, has leapfrogged other charities that target multiple myeloma, a cancer of the blood.

The more prevalent the cancer, the more pernicious the problem. Pediatric cancer is a typical sector in which proliferation doesn't mean performance. Research focus is potentially diluted by thousands of small foundations. The mail is full of heart-tugging pitches replete with pictures of bald kids fighting cancer. "Last chance to send a teddy bear to a pediatric cancer patient for Valentine's Day," pleads a missive from the Children's Cancer Research Fund (CCRF), which has a nickel attached to make the plea more plaintive—a common direct-mail gimmick. In 2009 the charity sent $2.7 million to the University of Minnesota, its sole beneficiary, for research, which is admirable. But it also spent about $9.8 million on direct mail and other expenses to deliver that funding, which is a lot of teddy bears. Is it efficient? No, says Charity Navigator, a group that grades philanthropies and gives the CCRF a zero rating. Yes, says marketing manager Kris Huson, since investigators can often use seed money to apply for larger grants and multiply the money that CCRF provides, which can lead to bigger things. The university, for instance, has a brain-tumor vaccination in clinical trials.



JAMIE CHUNG FOR TIME

The cost of badly managed cancer charities isn't just wasted money. People are dying while these outfits mishandle funds that could go toward care

You can't find any teddy bears at CureSearch for Children's Cancer, which is aiming to become a national center of research. CEO John Lear says there's a direct connection between financial leverage and breakthrough research. His organization is one of the main funders of the Children's Oncology Group, a coalition of 210 hospitals that coordinate research and have the ability to run large clinical trials on, say, acute lymphoblastic leukemia, the most common childhood cancer. "They have been at the forefront of all the clinical breakthroughs that have occurred over the last several decades," says Lear.

The throw-weight argument is also made by Susan G. Komen for the Cure. Komen is the largest funder of breast-cancer research after the government-run National Cancer Institute. Komen has $300 million in grants outstanding, but in the past couple of years it has focused on giving what it calls Promise Grants—those that have the best chance of producing tangible results within a decade.

Elizabeth Thompson, Komen's president, says the recession has forced some rethinking within the sector. "We have been approached by other organizations during the worst of the economic times about consolidating. [But] organizations are almost always founded by someone who had a particular or specific vision. The idea of giving that up is difficult."

One of the major reasons that charities underperform is that they aren't held accountable. "We don't have high-functioning markets the way we do in the for-profit deal," says Professor Allen Grossman of Harvard Business School, who has pushed reform by developing analytical tools for nonprofits. "In the for-profit world, if you don't serve your customers, they go away."

That lack of market discipline is being challenged by a new type of charity largely run by venture philanthropists operating in a venture-capital mode. Using tools like those being developed by Grossman and FasterCures, they can measure output—how has a charity advanced the science, for instance. By demonstrating effectiveness, this new breed is outcompeting traditional charities in the race for available funds, especially from philanthropists and big foundations.

The stars of the venture-charity model include MMRF and ABC2 (Accelerate Brain Cancer Cure), started by AOL founder Steve Case and his family, which posits that a "nimble, focused and entrepreneurial model" will make advances against a cancer that has a poor long-term survival rate. The Melanoma Research Alliance, started by Wall Street mogul Leon Black and his wife Debra, is now the largest nongovernment funder of melanoma research. According to FasterCures, no other group was spending as much as $1 million on research.

Critically, FasterCures has sought to link these evolving groups through a program it calls TRAIN, an acronym for the Research Acceleration and Innovation Network. It's trying to spread best practices across a host of health care groups, a break from the past in which researchers and organizations shielded their work to protect their grant money and intellectual property. "Those that are willing to change want to learn from other groups," says Margaret Anderson, executive director of FasterCures. "They believe in 'Let's make it as efficient as possible.'"

Many traditional cancer nonprofits aren't going to measure up in this entrepreneurially driven, results-oriented world. And more to the point, they are going to be unmasked as better information comes into the marketplace. The one thing that isn't likely to change is our generosity. People will spend lots of time and money trying to snuff out a leading cause of death. But they will have to eliminate some organizations to achieve the best results. That may be harsh. So is cancer. ■

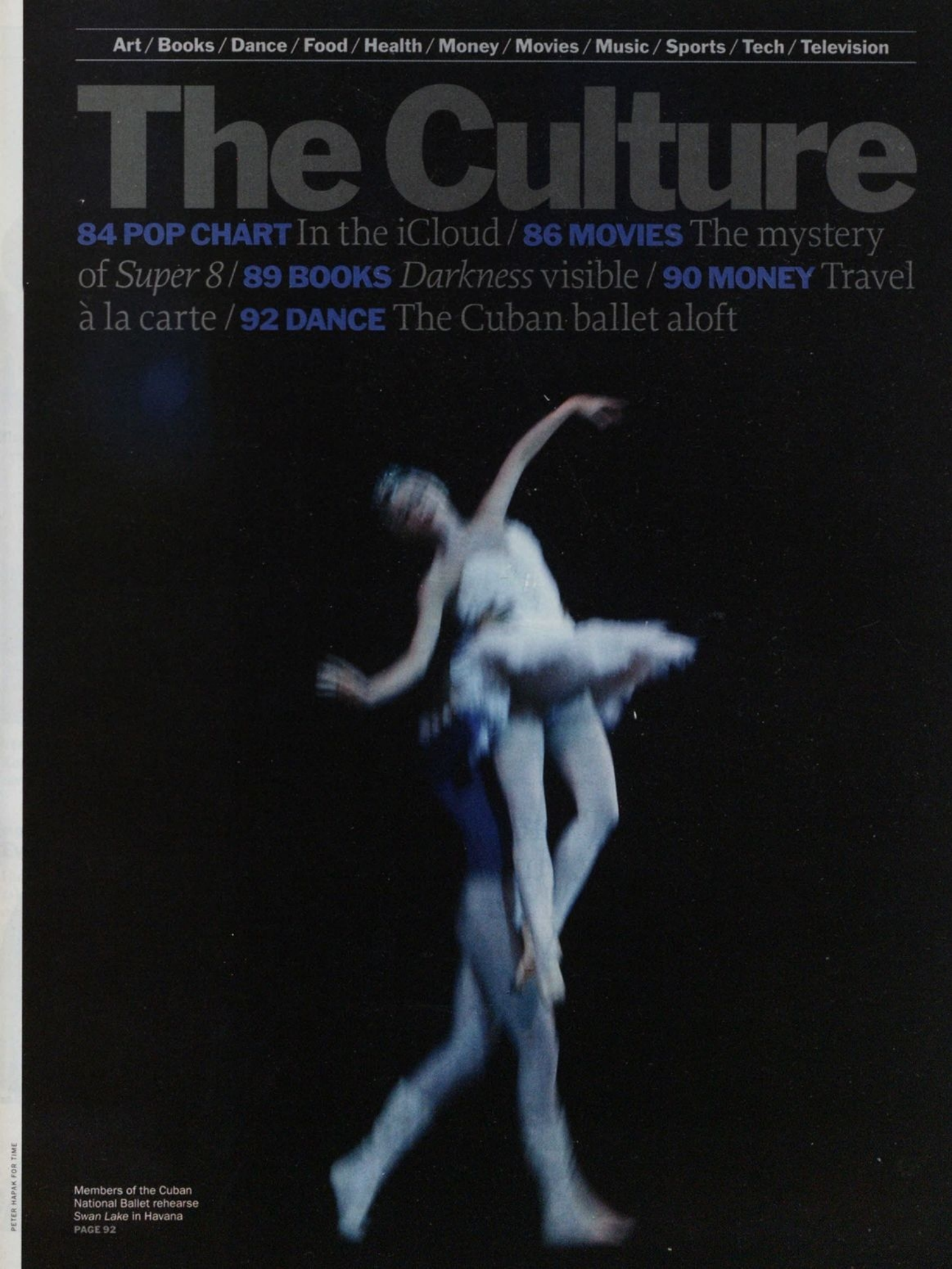
More than words.
Priorities.

START LEARNING A LANGUAGE TODAY.

RosettaStone.com • 1 (877) 204-4949

RosettaStone®

The Culture



Members of the Cuban National Ballet rehearse *Swan Lake* in Havana
PAGE 92

PETER HAPAK FOR TIME

Pop Chart

GOOD WEEK/ BAD WEEK

Alec Baldwin
Used his new Twitter account to discuss Yeats, Shakespeare and booze. Jack Donaghy would be proud.

Anthony Weiner
A college student received a lewd picture from his allegedly hacked Twitter account.

MOVIES

Enter the *Dragon*

In an introduction worthy of hacker heroine Lisbeth Salander, the first glimpse of director **David Fincher**'s adaptation of *The Girl with the Dragon Tattoo* came in a leaked trailer that appeared to have been illegally filmed in a movie theater. (Sony Pictures released an official version a few days later.) Though the film calls itself "the feel-bad movie of Christmas," the dark, intense teaser makes it easy to feel good about what Fincher has in store.

There's no ball, just a shuttlecock. No, seriously.

SPORTS

Skirt Shot

Following outrage over a new uniform code that sought to make female professional badminton players more "attractive" by requiring them to compete in short skirts or dresses, the Badminton World Federation scrapped its plan. The proposal was particularly ill-received in countries with large Muslim populations.

CELEBRITY

Big Bling

New Jersey Nets forward Kris Humphries proposed to Kim Kardashian with a 20.5-carat emerald-cut diamond ring. The sparkler, which Humphries co-designed with jeweler Lorraine Schwartz, reportedly cost $2 million, more than half of his annual salary. And they say love don't cost a thing.

TECHNOLOGY

iCloud on The Horizon

When Apple is set to launch a new product, they tend to keep it a secret. So techies were surprised when the company announced that CEO Steve Jobs would unveil its new service, iCloud, on June 6. Reports speculate that iCloud will let users stream their iTunes music from any Apple device and will serve as Apple's answer to Amazon Cloud Player and Google Music.

VERBATIM

"There are no secrets at our house. We tell the kids, 'Mom and Dad are going off to kiss.'"

BRAD PITT, in an interview with *USA Today*, on how he and Angelina Jolie make time for themselves while caring for their six children. The actor said when he and Jolie announce plans to sneak away, his kids reply, 'Eww, gross!' And rightly so.

STYLE

Say Yes To the Dress

One of the silver screen's most memorable pieces of clothing will be available for purchase June 18, when actress Debbie Reynolds auctions off the white halter dress Marilyn Monroe wore above a New York City subway grate in 1955's *The Seven Year Itch*. The flowy frock is expected to fetch a seven-figure sum.

CLOCKWISE FROM TOP LEFT: EUGENE GOLOGURSKY—WIREIMAGE/GETTY IMAGES; SONY (5); LIU JIN—AFP/GETTY IMAGES; PASCAL LE SEGRETAIN—GETTY IMAGES; FRANCESCO GALLI FOR TIME; PBS; BILL CLARK—GETTY IMAGES; MELINDA SUE GORDON—WARNER BROS.; EVERETT; STEVE GRANITZ—WIREIMAGE/GETTY IMAGES; NIALL MCONEGAL—ALAMY; ALEX WONG—GETTY IMAGES

VENETIAN ARTSCAPE *The 54th Venice Biennale features work by artists from 89 countries, including German sculptor Katharina Fritsch, whose* Stillenben, *above, is perched next to the Arsenale. Duo Allora & Calzadilla represented the U.S. at the contemporary-art expo, which runs through Nov. 27, with* Gloria, *an installation that includes an upside-down 52-ton tank.*

MEDIA

All Eyez On PBS

Hackers posted a satirical article on the PBS *NewsHour* website over Memorial Day weekend, claiming that the late rapper Tupac Shakur was alive in New Zealand. The most improbable part? That PBS would know who Tupac is.

MOVIES

Even More Hungover

Hollywood loves a trilogy. The logical next step after *The Hangover Part II* raked in a whopping $135 million in its first five days—making it the biggest opening ever for a comedy—is to get the guys drunk and do it all over again. Craig Mazin, who co-wrote the sequel, is reportedly in talks to work on a new script. After partying their way through the raunchiest cities in North America and Asia, where in the world will the Wolfpack head next?

DEBAUCHOMETER

VERBATIM

'I like the *Twilight* series ... I don't like vampires personally, I don't know any.'

MITT ROMNEY, former Massachusetts governor and 2012 GOP presidential hopeful, admitting he read the young-adult vampire-romance series after hearing about it from his granddaughter.

5 THINGS YOU DON'T HAVE TO WORRY ABOUT THIS WEEK

1. Orlando Bloom's career. Peter Jackson has taken pity and cast the elfin actor in the new *Hobbit* films.

2. Actorly ambition. Jon Hamm thinks he's qualified to direct *Mad Men*'s Season 5 premiere.

3. *The Wire*'s legacy. Attorney General Eric Holder jokingly demanded another season of *the greatest TV show of all time.*

4. Hollywood's obsession with 3-D. Though audiences are tiring of the gimmick, Disney will release *The Lion King* in 3-D.

5. Coachella tickets. The California music fest will grow to two weekends in 2012.

By Megan Friedman, Claire Suddath, Feifei Sun and Kayla Webley

Movies

Super men
Producer Spielberg, near left, joins director Abrams on the set

Secret's Out. J.J. Abrams' *Super 8* is as great as you hoped it would be

By Richard Corliss

SOMETHING—SOME *THING*—IS TERRIFYING the good folks of Lillian, Ohio, but what is it? A gas-station attendant, his face blanched with fear, sees it and screams; all we see is his body being jerked out of the frame. A telephone lineman on his crane hears it as a clattering clank of metal, like a clumsy heist at Home Depot; soon he's gone. But the creepiest hint that a nasty creature lurks in Lillian comes when 12-year-old Joe (Joel Courtney) posts a notice about his lost dog on a public bulletin board and the camera pulls back to reveal a hundred posters of missing pets. Who, or what, took the dogs out?

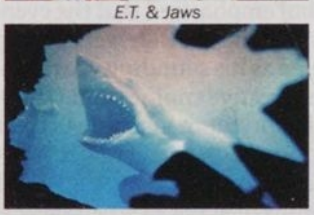
J.J. Abrams, writer and director of the scary, artful new thriller *Super 8*, is a hoarder of secrets, a master in the fine art of withholding information. Fans of *Lost*, the TV series he co-created, had to stick around six years for its mysteries to be revealed. "J.J. makes the audience wait for it," says Steven Spielberg, a producer and abettor of *Super 8*. With a conjurer's practiced blandness, Abrams simply says, "I believe in anything that will engage the audience and make the story more effective." But the man is no sadist. He, more than anyone, loves not knowing what comes next. As a boy, he bought a mystery box at a Manhattan magic store; now 44, he still has the box and still hasn't opened it.

What's Inside the Boxcar?

THE MYSTERY BOX IN *SUPER 8* IS A BOXCAR on a freight train speeding through Lillian one night in 1979 as some kids are furtively shooting a Super-8 movie. Pudgy Charles (Riley Griffiths) is the director, with the

8 TRACK
Take tropes from Spielberg's classics, add Abrams' flair for secrets and style, and ... presto!

E.T. & *Jaws*



+

Lost & *Star Trek*

=

Super 8

A smart film that taps the Spielbergian nexus of fear and wonder

quick mind, bossiness and vast reserves of movie lore that mark a budding auteur. Cary (Ryan Lee) puts his pyrotechnic and possibly pyromaniacal skills to use as special-effects wizard. Joel does makeup and constructs the models that Charles' action film will crash. But like any nebbishy guys, these kids are making movies to attract the ladies—specifically their leading lady, Alice (Elle Fanning), a 14-year-old blonde with an imperious star quality. As Joel powders her face for the shoot, he gazes at her with naked adoration, perspiration forming on his brow like evening dew.

In the middle of their big take, the train crashes into a car on the tracks, spraying tons of debris their way and sending a platoon of military men fanning out across the scene. Only Joel has noticed that the car was driven onto the tracks, seemingly in a suicide mission. In the car is the boys' science teacher (Glynn Turman), injured and near death. "They will kill you," he mutters. "Do not speak of this or else you and your parents will die." Do not speak of what? Of the thing that none of the kids saw—the some *thing* that has escaped.

In the other movies Abrams directed, the third *Mission: Impossible* and the retooled *Star Trek*, he ornamented familiar mythologies. *Super 8*, his first feature as writer-director, required that he build his own box—and open it. "Withholding things in a story is no good if you aren't building to something substantial," he says. "It becomes foreplay without the main event, and no one wants that."

Abrams adepts will recall a similar story, of young people banding together to face a ravenous monster, from *Cloverfield*, the 2008 alien-invasion film he produced. But *Super 8* has a gentler vibe: it leavens the apocalyptic threat with the budding bonding of Joel and Alice. Joel's beloved mother has recently died in a steel-mill accident. His father (Kyle Chandler, from *Friday Night Lights*), Lillian's deputy sheriff, has his hands full trying to save the town. The lonely 12-year-old, clinging to his mother's necklace as a talisman, is aching for the sympathetic company of an older woman—even two years older.

Alice, just crossed to the other side of the great puberty divide, possesses a maturity that comes as much from abiding her angry father as it does from her natural poise. She's lonely too. Their inchoate romance could prove therapeutic for both, with Alice finding pure friendship and Joel learning to let go of morose childhood. All these kids, Abrams says, are "on the precipice of something—the end of a time. I wanted to catch kids at the very edge of full-blown, raging puberty, in their last moments of innocence."

The Age of Innocence

THERE'S A REASON THAT *SUPER 8*, WITH all its cool thrills, also seems a work of innocence: it takes incidental inspiration from the films of a director who, back in 1979, was the J.J. Abrams of his day. Look closely and you'll see that *Super 8* is a medley of tropes from the films of Spielberg's early prime. They're all here: *Duel* (an unseen, car-wrecking force), *The Sugarland Express* (a blonde driving a hot car), *Jaws* (the town sheriff tracking a monster), *Close Encounters of the Third Kind* (ordinary folks unearthing a military secret), *1941* (people panicking on news of an invasion), *Poltergeist* (an underground menace that steals people), *The Goonies* (kids on a dangerous mission) and especially *E.T.: The Extra-Terrestrial* (an alien event seen through children's eyes, plus a few other echoes we won't mention).

The films are summoned not as a series of gag references but as an evocation—in a grainier, more urgent style—of the old Spielbergian nexus of childhood fear and wonder. "I didn't want the film to look like it was made in 1979," Abrams says. "I wanted it to look the way we *remember* films looking from 1979. I wanted to build a bridge between then and now. This was always an Amblin film in spirit," he says, referring to Spielberg's production company, "because that period in my life was so profoundly impacted by American cinema of the era."

That era was the late '70s, when Jeffrey

PREVIOUS PAGE: FRANÇOIS DUHAMEL—PARAMOUNT PICTURES; THIS PAGE, FROM TOP: EVERETT COLLECTION (2); MARIO PEREZ—ABC/GETTY IMAGES; EVERETT COLLECTION; PARAMOUNT PICTURES

Jacob Abrams was a movie-mad kid growing up in Los Angeles, the son of film and TV producer Gerald Abrams. *Super 8* is a sort of fictionalized memoir of his early days shooting Super-8 movies with his pal Matt Reeves. Reeves later would direct *Cloverfield* as well as *Let Me In*, which, like *Super 8*, is a poetic rendering of preadolescent anguish in a horror-film setting. (Larry Fong, another teen compadre of Abrams', is *Super 8*'s cinematographer.)

When they were 15, Abrams' and Reeves' work was written up in the Los Angeles *Times*, and, miracle of miracles, the boys got a call from Spielberg associate Kathleen Kennedy with an offer to have them repair two of the 8-mm films, then crumbling, that the master had made when he was their age. "To this day," Abrams says, "it makes no sense to me why Steven would put the original prints of *Firelight* and *Escape to Nowhere* in the hands of two 15-year-old strangers. I mean, have you ever seen 15-year-olds? Don't give them things if you want them back—especially repaired. But Matt and I did it."

As a boy, Abrams bought a mystery box at a Manhattan magic store. He still hasn't opened it

Decades later, Spielberg and Abrams revisited their boyhood love of movie-making. "We both had idea fragments about our early 8-mm days, using friends to act and crew our movies," Spielberg says. "Kind of like an insane 8-mm *Our Gang* adventure. Then J.J. had the idea to put them in the middle of a big sci-fi event but emphasized that the event was the B story and the kids were the big story. I acted as his sounding board, but J.J. was the creative engine from Day One. He felt this story from his soul. As I watched him acting out scenes, I saw myself 20 years ago. He was like my time machine."

Fanning, playing 14 when she was 12, is a showbiz pro, having co-starred in Sofia Coppola's *Somewhere*. But Courtney, 14 playing 12, was just an Idaho kid taking acting lessons when Abrams cast him. The stark tenderness of their scenes is surely due in part to the director's communicating with them peer to peer, as if, once again, he were a kid putting his friends through their movie paces. "He was 14 directing 13-year-olds," Spielberg says, "and the honesty that shows in every performance was the natural result."

Given Abrams' talent for the tease, *Super 8* has fanboys on point for the movie's June 10 release. They and other moviegoers may be shocked at how the film plays with genre expectations, then transcends and obliterates them. "The greatest fun and challenge," Abrams says, "came from balancing a coming-of-age love-story character piece with essentially a monster movie." Did you ever cry at a boy-meets-girl picture? All right, did you root for a monster to win? Those are just two of the surprises awaiting you in the year's most thrilling, *feeling* mainstream movie. The some *thing* you'll feel is the open heart of J.J. Abrams, *Super 8*'s boy genius. ■

Books

Repro Madness
Ann Patchett's thriller imagines a utopia of fertility

By Mary Pols

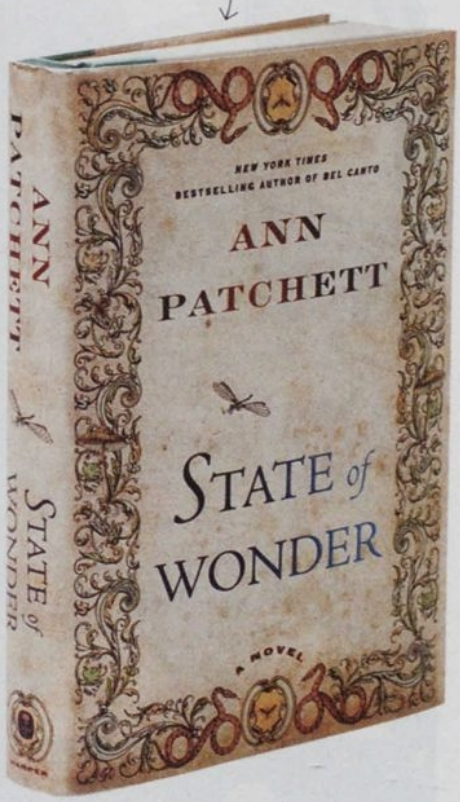
IN *STATE OF WONDER*, HER SIXTH AND best novel, Ann Patchett steps boldly into *Heart of Darkness* territory, with a modern and topical—and female—Kurtz. She is Dr. Annick Swenson, an ethnobotanist who claims to have discovered the secret to endless fertility somewhere deep in the Amazon jungle. Her funder, the Vogel pharmaceutical company, wants evidence; future fortunes depend on it. But the 73-year-old Swenson is elusive, dodging phone calls and disdaining e-mail. She's gone rogue.

Four months earlier, Vogel's Anders Eckman, a cheerful bird-watching father of three, ventured into the Amazon on a mission to bring back Swenson or her data or both. Now he is dead from tropical fever. His widow Karen wants his body. The company still needs that data. It falls to Anders' lab partner, Dr. Marina Singh, to be our reluctant Marlow, making the miserable, dangerous journey to Swenson's research station amid the Lakashi tribe, whose women bear children into their 70s.

These pages have a pulsing, seductive rhythm reminiscent of that other contemporary twist on the Kurtz myth, *Apocalypse Now*. The drumbeat starts slow and builds into something fevered, exciting and unexpected—I counted five twists I never saw coming.

Six, if you include Marina's developing from something of a wet biscuit into a surprisingly alluring protagonist. She tends to be fearful and self-punishing, and her choice in lovers is suspect. (She goes to Brazil because her boss and secret lover Jim Fox—who's old enough to be her father and is about as exciting—pressures her into it.) But when she finally connects with her old professor Swenson at an opera house in Manaus (a scene that calls to mind the operatic themes of Patchett's 2002 best seller, *Bel Canto*), Marina's passivity begins to fade. The moment she steps foot onto Swenson's riverboat is when *State of Wonder* really takes off.

MEMORABLE LINE
"You're going to have to toughen up or as God is my witness, I will put you on the shore right here."



If I were an actress of a certain age—say, Helen Mirren or Meryl Streep—I'd option this book today

If I were an actress of a certain age—say, Helen Mirren or Meryl Streep—I'd option this book today, because Swenson is a powerful character: brilliant, decisive and utterly uninterested in social lubrication. As Marina heads farther and farther from civilization, she ends up "feeling very much the same way she always felt with Swenson, like Oliver Twist holding up his empty bowl." But this distaff Kurtz is as entertaining as she is intimidating. Her jungle home is full of astonishing objects, from exceptionally potent mushrooms to magical tree bark (is Patchett an *Avatar* fan?). But she scoffs at Westerners who see the jungle as an unopened medicine chest. "For the most part," she tells Marina, "the treatments here consist of poorly recorded gossip handed down throughout the ages from people who knew very little to people who know even less."

Swenson might appear heartless if it weren't for her intense bond with a native boy named Easter. Ostensibly her devoted manservant, Easter is also a surrogate child of sorts; her relation to him is as close to mothering as Swenson will ever come. Patchett returns time and again to the emotional divide between those with children and those without. (Marina admits that she knows Anders' widow "only as well as a 42-year-old woman with no children knows a 43-year-old woman with three.")

In fact, the decision to become a parent—or not—is the dark heart of the book. In imagining state of ageless fertility, where does Patchett stand on the Western quest to bear children far later than nature intended? Her novel shows compassion for baby craving even while positing it as a form of greed, especially when set in contrast with the health issues that plague the developing world. ("Children die out here constantly, that's why so many of them are needed," Swenson tells Marina.) The wonder of *State of Wonder* is that Patchett poses essential philosophical and bioethical arguments in a story that still speeds along like a literary thriller, reaching a tremendous, deeply emotional crescendo. *Bella scrittura.* ■

Money

Skyway Robbery! Add-on charges take over the airlines

By Bill Saporito

THE SLOPES OF THE ROCKIES BECKONED for spring skiing. The airfare seemed reasonable enough on short notice: New York City to Denver for $386 round-trip. But United wasn't finished trying to pry money out of me.

At the self-service check-in kiosk, I was offered a chance to upgrade to Economy Plus for $40. Did I have bags to check? The first was $25, the second $45. Did I want to shortcut the security line and board early with the swells, or hope there'd be room in the overhead bins when I got to them? Call it a dehassling fee: $29. The extras, all told, could have added as much as 50% to the ticket price.

Welcome to the unbundled skies. Unbundling is the practice of separating as many cost components as possible—in the case of air travel, baggage, boarding, meals, miles, wi-fi—and selling them apart from the basic fare. Airlines are reeling from high fuel costs, so they are taking unbundling to new altitudes. Travel consultant Jay Sorensen, president of IdeaWorks, has identified 35 add-ons, from standard charges such as baggage and food fees to more exotic options like flight-delay insurance—or how about a fee to keep the middle seat next to you empty?

A la carte pricing gives the airlines shelter from fierce fare wars. Thanks to Expedia, Kayak and other websites, you can discover the cost of flying from Dallas to Boston on most airlines. So nonrefundable coach fares have been driven down to the point that the airlines figure out what they have to charge to get a plane 75% filled—past the break-even point. That allows the airlines to shift capacity risk to you—meaning that if you don't show, it's your loss, not theirs, says consultant Olivier Fainsilber of Oliver Wyman. There's not much profit in it, though. The airlines do earn money selling "optionality," mostly to business travelers who pay a premium

THE EXTRAS

1. Overhead bin
You can wait anxiously with the horde at the gate, hoping there will be space when you board. Or you can pay extra and go to the head of the line.
Price: **$10 to $35**

2. Legroom
Continental is adding Economy Plus. Foreign carriers are creating a new class of service based on it.
Price: **$9 to $49**

3. Exit rows
Frequent flyers used to suss them out. Now they're for sale at US Airways, as are bulkhead seats. Carriers are pricing seats by location, just like real estate.
Price: **$5 to $35**

4. Comfort
JetBlue got flack for selling a sanitized pillow and blanket pack. But would you want a germy free set?
Price: **$7**

Coach used to mean one class of service. With unbundling, it varies by where you sit and how much you pay

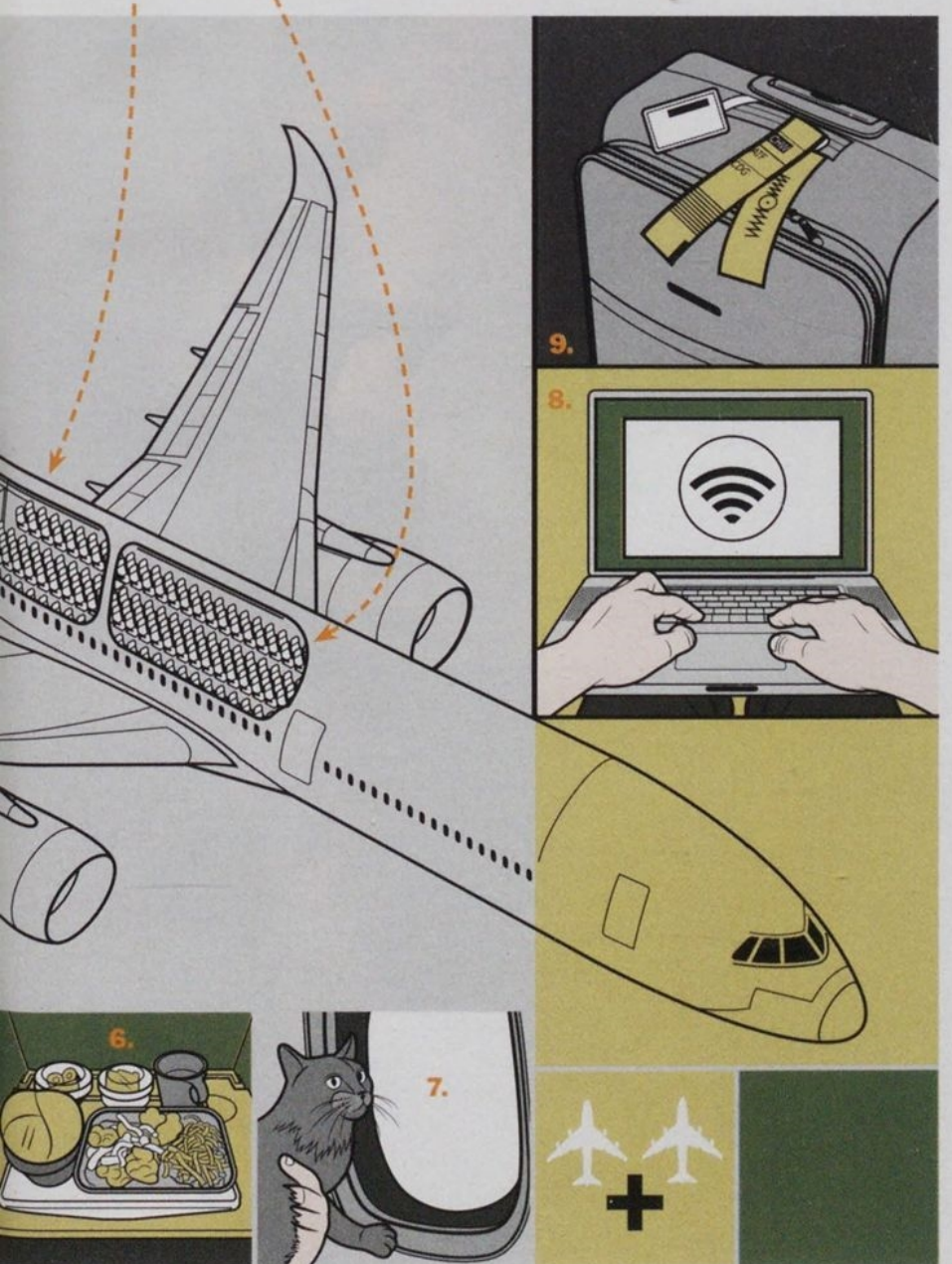
5. Perks
Fancy a visit to the airline club? How about doubling your miles? Available for a not-so-small fee.
Price: **$25 to $50**

6. Meals
Yes, they were once free. And dreadful. No longer limited by cost, carriers are upgrading the food, not to mention the pricing.
Price: **$5 to $10**

7. Pets
Your furry travel companions are taking up space. So why shouldn't they pay to fly in the cabin? At least you don't have to buy them drinks.
Price: **$125 one way**

8. Wi-fi
There is no escape from the office anymore. But wi-fi costs carriers about $250,000 per plane to install. You think they're going to give it away?
Price: **$5 to $15**

9. Baggage
Most airlines charge for checked bags, but not Southwest or JetBlue. Expect more confusion and fees.
Price: **$25 to $45**



for refundable fares or the option of changing or canceling flights.

Unbundled services, on the other hand, can be far more profitable than selling seats: the prices aren't posted on websites, for one thing. The profit margins on ancillary revenues are as high as 80%. That's why the carriers are going to take unbundling as far as they can. The industry's revenue from add-ons grew to $21.46 billion last year, up 96% in two years. United's ancillary revenues are up 150% since 2007. American's were nearly $2.2 billion in 2009, says Sorensen, about 9% of total revenue. The majors see plenty of room for growth given what some of the minors are doing: Allegiant Air grabs 29% of its revenue from extras.

Airlines once flew two- or three-cabin aircraft that had clear distinctions in price and service. Now there's business class and what has essentially become a variable class of service for every seat in coach. Many travelers appreciate options like more legroom. But the lack of consistency among airlines as to what they will charge extra for will be a source of frustration as unbundling plays out. (There's no baggage fee on Southwest; there is an early-boarding fee.) The U.S. Department of Transportation is proposing a new rule that would make fees more transparent. And when it comes to airlines, "people are generally in a bad mood anyway," says Sorensen, who is one of them.

In the unbundled world, airfare is merely the price of admission to get on a jet. If you crave comfort, convenience, less stress, decent food—what was once called good service—expect to pay up. That's not exactly friendly, but if you want a friend, goes the saying, buy a dog. Buy the dog, says the unbundled airline industry, and it'll cost an extra $125 to bring it on board. ■

Illustration by Jameson Simpson for TIME

Dance

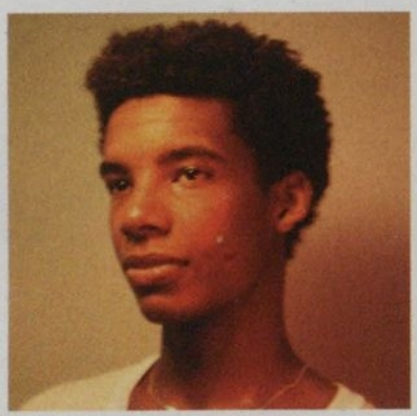
Jump Start
The Cuban National Ballet leaps into a Stateside tour

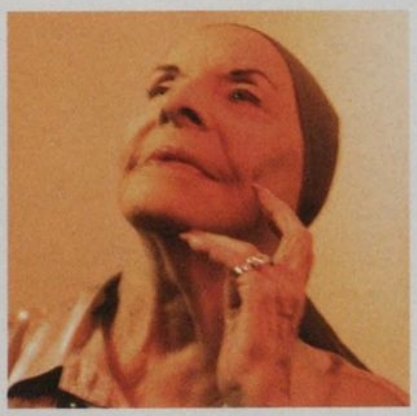
Photographs by Peter Hapak for TIME

IT'S THE DAY BEFORE THE PREMIERE OF *Swan Lake* on May 12 at Havana's Grand Theater, and backstage, the dancers of the Cuban National Ballet (BNC) corps are vibrating with nervous energy. The final rehearsals are a prologue to more than just a local premiere: in June, the company will perform Tchaikovsky's ballet and other classics in the U.S.—its first tour of America in eight years and the first time many of these young dancers will set foot on American soil. While Cuban-American diplomatic relations show few signs of thawing, visa exchanges for artists, writers and performers traveling between the U.S. and Cuba have increased, following tight restrictions during the Bush Administration.

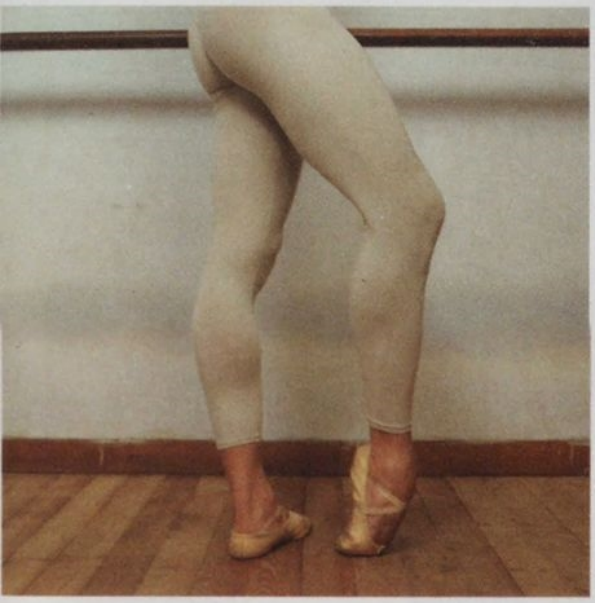
In Havana, the legendary ballerina and BNC director general Alicia Alonso has settled in to watch the last rehearsals.

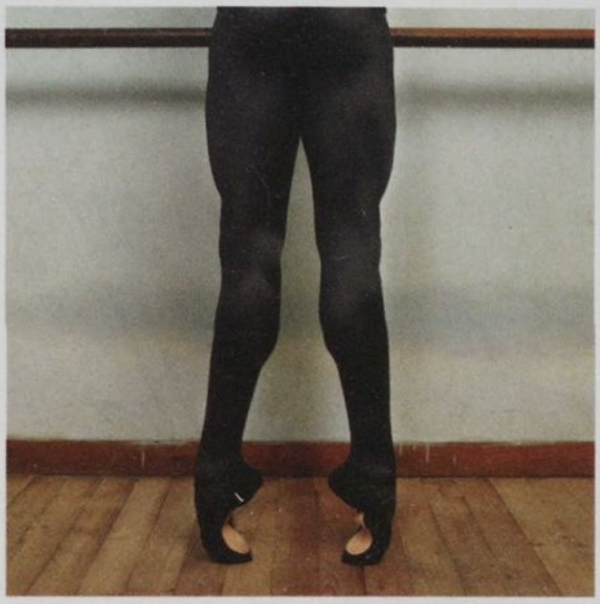
FLEDGLING STAR
Grettel Morejón, 22, backstage during a performance of *Swan Lake* in Havana





PAST AND PRESENT
Above, José Losada, 25, and far left, Osiel Gounod, 20, are both making their first trips to the U.S.; near left, Cuban National Ballet director Alicia Alonso





LEGGING IT
This page, clockwise from top left: rehearsals in the BNC studio in Havana; run-throughs of *Swan Lake;* prima ballerina Sadaise Arencibia is embarking on her third U.S. tour; 25-year-old Alejandro Virelles is already a seven-year veteran of the BNC

Alonso founded the BNC (then known as the Alicia Alonso Ballet Company) in 1948; she is 90, has difficulty walking and is nearly blind. Yet she follows the dancers' movements and the sounds of their bodies with close attention. After less than a minute, she claps her hands twice, and silence falls instantly. The grande dame is not happy. "Your movements are too slow," she says. "Remember that you represent happiness and joy. A spectator in the last row must feel it." As she speaks, her hands fly through the air, her face lights up, and she taps the wooden floor with her feet in rapid succession. The dancers watch her, rapt. They seem to hold their breath. And then they go again. —ABEL GONZÁLEZ ALAYÓN ■

The BNC performs June 8 to 11 at the Brooklyn Academy of Music in New York City and then travels to Costa Mesa, Calif., and Los Angeles

UP IN THE AIR "This tour will be a major test for all of us," says dancer Camilo Ramos, 21.

Michael Grunwald

If You Can't Take the Heat

Hate if you must, but the Miami Heat is the team every NBA fan should love

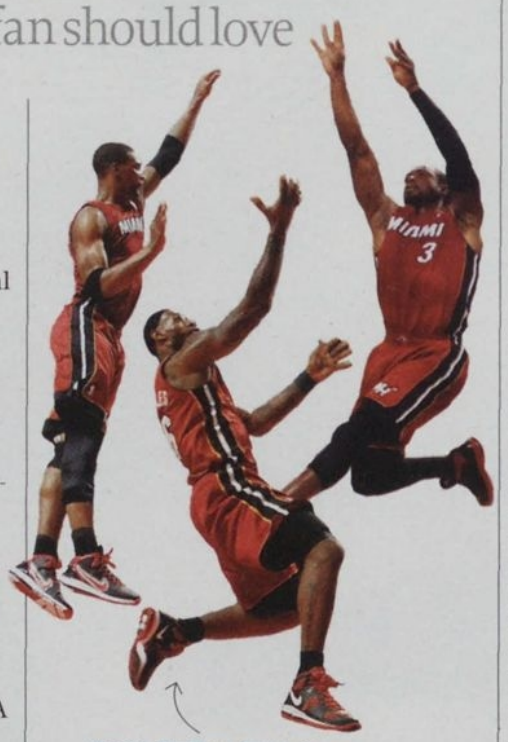
THERE ARE TWO THINGS SPORTS fans love to hate. The first is the modern epidemic of me, me, me: superstars who care only about their stats and their paychecks, teams that don't play like teams, owners with no sense of loyalty. Fortunately, the National Basketball Association has a team that defies those stereotypes. Its superstars and key role players took pay cuts to chase championships and embraced its team-first, unselfish style of play. The organization considers itself a family, which is part of what attracted the superstars in the first place. I am talking, of course, about the Miami Heat.

You know—the second thing sports fans love to hate.

Speaking as an objective journalist, now that the Heat and its Big Three have defied all the predictions of ego clashes and coaching shake-ups to make the NBA finals and win Game 1 against the Dallas Mavericks, now that the critics who wrote morality-tale obituaries after the Heat's pitiful 9-8 start are eating crow, I think it's fair to say: Ha!

O.K., maybe I'm not totally objective. I've been a Heat fan since I moved to Miami in 2003, the same year Dwyane Wade moved to Miami. The Heat played the right way, and watching Wade as a rookie felt like watching Nirvana at a neighborhood dive bar before the band got famous.

I actually had mixed feelings about LeBron James' joining Wade even before that cheesy ESPN show on which he announced he was taking his talents to South Beach. The Heat was D-Wade's team. When I took my toddler to *Sesame Street Live* at American Airlines Arena—which isn't even in South Beach—he thought it was really cool that Elmo was in D-Wade's house.



Miami's Big Three, from left: Chris Bosh, LeBron James and Dwyane Wade

But a season of watching LeBron, Wade and Chris Bosh—and hearing America gripe about them—has unmixed my feelings. They left millions of dollars on the table to join forces, and they play efficiently and selflessly, passing out of double-teams and helping out on defense. Conventional wisdom said two alpha dogs were one too many, but LeBron and Wade learned to work together. Except for one gimme-the-ball outburst that actually helped get the Heat on track, Bosh has been content to be the third option. The only other Heat players making money by NBA standards, the gritty hustle duo of Udonis Haslem and Mike Miller, also made financial sacrifices to play in Miami, and they exemplify the Heat's play-hurt, dive-on-the-floor ethic.

Still, LeBron did a bad TV show, so everybody hates the Heat. Hey, George Clooney did *The Facts of Life*. Why doesn't everybody hate him?

Oh, I get it. The Big Three are still making boatloads of money, even if it's less than stiffs like Rashard Lewis, Michael Redd and Andrei Kirilenko. None of the Heat's underpaid role players will end up in the poorhouse either. I can see how it would be hard to understand why LeBron would want to leave beautiful Cleveland for frigid Miami. And it is terrible how the Heat has jacked up the league's TV ratings.

But the Heat does all the things sports-radio yakkers say they want to see. Its players accept their roles. They play smothering defense and sacrifice their bodies to take charges. O.K., so they cried in the locker room after a late-season loss. Isn't emotional investment supposed to be a good thing?

The Heat did not buy its way to the finals; its payroll is around the league average. It achieved through smart salary-cap management and great salesmanship what every other team dreams of achieving. Its owner does not blog or whine about the referees the way certain NBA owners who are about to endure crushing disappointments have been known to do. And he didn't kick the team's excellent young coach to the curb after the Heat's slow start, as all the yakkers said he would.

There is one serious argument to make against the Heat: that the team is pushing the NBA even further into the cult of superstardom, forcing other big-market teams to try to assemble their own Big Threes. In the final analysis, it wasn't unselfish play that sparked the Heat's miracle comeback against the Chicago Bulls; it was LeBron and Wade hitting ridiculous clutch threes.

There is also a serious response to this argument: Ha! ■

FROM LEFT: BRIAN KERSEY—UPI/LANDOV (2); ADAM HUNGER—REUTERS

YOU HAVE CANCER

STAY FOCUSED ON YOUR FUTURE

We'll help you get back to work, so you can get back to your life.

cancerandcareers.org

OUR SPONSORS

FOUNDING: Avon Foundation for Women | Genentech

PLATINUM: Laura Geller Makeup, Inc.

GOLD: Bare Escentuals | CHANEL | The Estée Lauder Companies Inc.
L'Oréal USA | SELF Magazine | Shiseido Cosmetics America

SILVER: Batallure Beauty, LLC | Bath & Body Works | Fusion Brands Inc.
Johnson & Johnson Beauty Care | KAPLOW | Macy's | Nordstrom
The Procter & Gamble Company | Rodale
Sephora USA, Inc. | Target | Time Inc. | Tweezerman

10 Questions

Contrary to rumor, Hackman says, he was never offered the role of father Mike Brady on *The Brady Bunch* but might have taken it if he was

Ex-actor and current novelist **Gene Hackman** talks about bad jobs, poetry and abandoned Oscars

In the first chapter of your new western novel *Payback at Morning Peak*, the 17-year-old protagonist, Jubal, finds his mother dead, shoots his dad in the head as he burns alive and tries in vain to save the life of his 14-year-old sister, who has just been raped. You wanted it to start slow, huh?
Yeah, I wanted to dig myself into a hole so that I would have 300 pages to get myself out. I kind of maybe overdid it a bit, but it was fun trying to solve that dilemma.

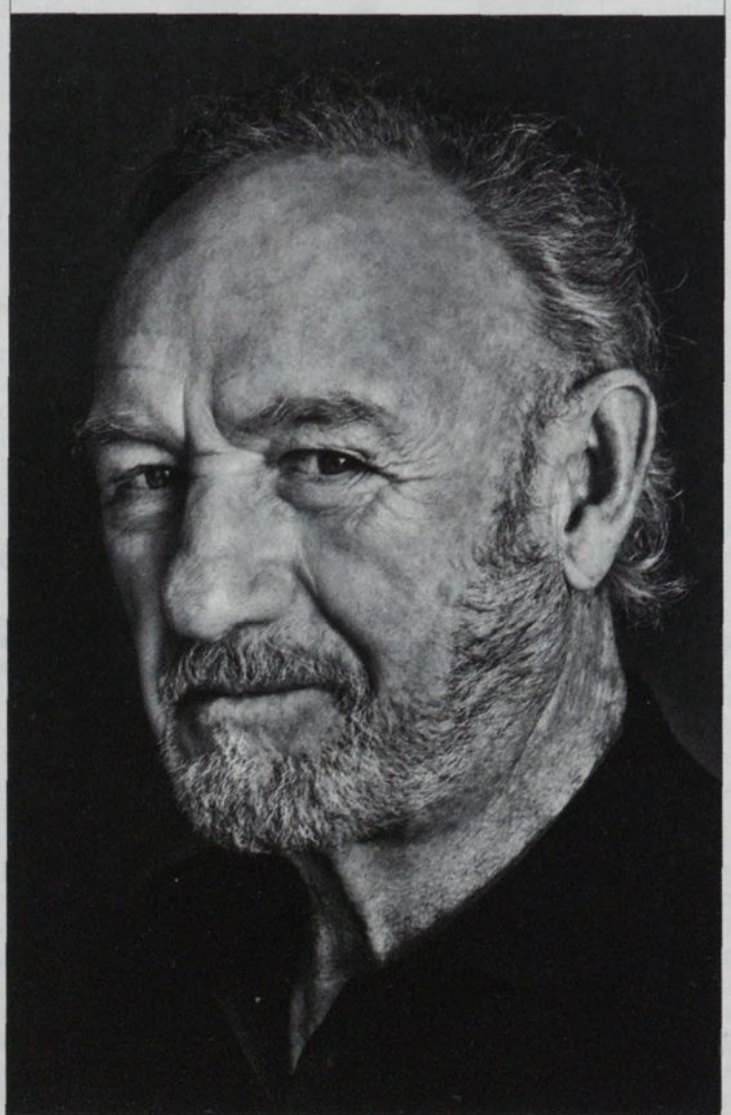
The book is violent, and you've played characters who are very violent. Is this a theme?
For some strange reason, early in my career—you know, I'm a fairly good-size guy—I was cast as policemen, and you just learn to do that kind of role. Hollywood loves to typecast, and I guess they saw me as a violent guy. I had great difficulty in *The French Connection* getting into the part of "Popeye" Doyle. Luckily, director Billy Friedkin didn't fire me. I don't see myself as a violent guy.

Jubal is roughly the same age *that you were when you joined* the Marines. Did you draw on some things you learned about yourself during that time?
I left home when I was 16 because I was looking for adventure. There was something in the book, certainly, about my young life in China, dealing with being one of the youngest people in my battalion in the Marines. A lot of what I experienced as a young man I kind of exaggerated into what this young Jubal may have found himself doing.

You end the book with a poem. Is poetry another skill we didn't know you had?
No. I struggled with that.

Are you going to write more novels? Perhaps a romantic comedy?
[Laughs.] I'm in the process. A police story of some kind.

What was the suckiest job you ever did on your way up?
The worst job I ever had was working nights in the Chrysler Building. I was part of a team of about five guys, and we polished the leather furniture. We had to work all night because people needed their chairs during the day. I wasn't very good at it.



What would it take to entice you to make another movie?
I can't imagine. But I still have a bit of a wanderlust about it. We live in Santa Fe, N.M., and they do a lot of films here, and I will see the wagons on the side of the roads sometimes, and I'd like to go talk to somebody, but I don't. I did stop once when there was a young assistant director on a backstreet in Santa Fe, directing traffic. I pulled up next to her and asked her if they were hiring any extras. She said, "No, I'm very sorry, sir."

Is your reluctance because you don't like the way you look onscreen?
There's a lot of vanity involved. I don't want to play great-grandfathers. And a lot of it is the stress of movie-making. You get a little older, and you don't like to get up at 5:30 in the morning. And night work. I hate night work.

If one of your movies comes on TV, do you watch it?
I'll watch maybe five minutes of it, and I'll get this icky feeling, and I turn the channel. Rather than being disappointed, I've always stayed away from watching my films unless I absolutely had to.

I read that you don't even know where your two Oscars are. Can this be true?
It is true. I have a poster of Errol Flynn, but other than that, around the house we just kind of keep it civilian.
—BELINDA LUSCOMBE

FROM LEFT: BRIAN SMITH; PHOTOFEST

DODGE.COM

WHOEVER SAID

"DON'T SWEAT THE SMALL STUFF"

DOESN'T

WORK HERE

THE NEW 2011 JOURNEY

IT'S DIFFICULT TO PICK ONE GREAT THING TO SAY ABOUT THE NEW 2011 JOURNEY. IT HAS 67.6 CUBIC FEET OF STORAGE, AN ALL-NEW REFINED INTERIOR, AVAILABLE INTELLIGENT AWD, OPTIONAL SEATING FOR SEVEN AND TOP SAFETY PICK HONORS FROM THE IIHS. SO YES, PICKING JUST ONE THING IS PRETTY MUCH IMPOSSIBLE.

DODGE // NEVER NEUTRAL

Collection Haute Joaillerie, L'Ame du Voyage.

LOUIS VUITTON